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## Dimensions and Validation of Perceived Message Sensation Value Scale for Print Messages

Lisanne F. M. Grant

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Dr. Bobi Ivanov, Director of Graduate Studies

DIMENSIONS AND VALIDATION  
OF PERCEIVED MESSAGE SENSATION VALUE SCALE  
FOR PRINT MESSAGES

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DISSERTATION

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A dissertation submitted in partial fulfillment of the  
requirements for the degree of Doctor of Philosophy in the  
College of Communication and Information  
at the University of Kentucky

By  
Lisanne F. M. Grant

Lexington, Kentucky

Director: Dr. Donald W. Helme, Associate Professor of Communication

Lexington, Kentucky

2014

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## ABSTRACT OF DISSERTATION

### DIMENSIONS AND VALIDATION OF PERCEIVED MESSAGE SENSATION VALUE SCALE FOR PRINT MESSAGES

The purpose of this research project was to develop a reliable and valid scale to assess the perceived message sensation value (PMSV) of print messages. The goal of this project was accomplished by conducting two studies. Study one involved collecting 397 undergraduate students' responses to one high and one low sensation value anti-smoking message, while for study two, 284 undergraduate students' responses to one high and one low sensation value anti-crystal meth message were collected. The results of the studies highlighted that the PMSV of a print message can be assessed using three dimensions (emotional arousal, novelty, and dramatic impact) and 12 items. Additionally, the newly developed PMSV scale for print messages remained stable across sensation-seeking levels and two different sets of anti-drug messages. Analysis of the data collected also provided support for the convergent, divergent, and predictive validity of the PMSV scale for print messages. Furthermore, from the data it can be inferred that PMSV is an important element that contributes to perceived message effectiveness and attitude towards the ad. The findings associated with this research project also suggest that both high and low sensation seekers preferred high over low sensation value print messages. Lastly, the implications of the PMSV scale for print messages were addressed.

KEYWORDS: Sensation Seeking, Perceived Message Sensation Value, Targeting, Campaigns, Activation Model of Information Exposure

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09/14/2014  
Date

DIMENSIONS AND VALIDATION  
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FOR PRINT MESSAGES

By

Lisanne F. M. Grant

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09/14/2014

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This dissertation is dedicated to my mother, Francis Esmilda Grant, who has supported  
all my aspirations

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## Chapter One: Introduction

Creating messages in an effort to prevent individuals from engaging in behaviors that negatively affect their health is not a new endeavor (e.g., Farrell, Niederdeppe, & Yarsevich, 2003; Hornik, Jacobsohn, Orwin, Piesse & Kalton, 2008; Niederdeppe, Farrelly, & Haviland, 2004; Palmgreen, Donohew, Lorch, Hoyle, & Stephenson, 2001; Palmgreen, Lorch, Stephenson, Hoyle, & Donohew, 2007). However, some behavior changing messages used during campaigns are based on the assumption that a general message can be used to persuade anyone, regardless of race, gender, age, and personality, not to engage in behaviors that may negatively affect their health (see Noar, 2006). This is problematic, as even though general campaigns are effective with some groups, they have proven ineffective with others (see Terry-McElrath et al., 2007). The ineffectiveness of general campaign messages in reaching certain at-risk groups has led researchers (e.g., Hornik & Ramirez, 2006; Zimmerman et al., 2007) to select target groups and design persuasive messages that appeal specifically to these groups, also known as targeting. Researchers can target individuals based on race, gender, age, behavioral characteristics, personality traits, and etc. (Noar, 2006; Slater, 1996).

Sensation seeking, also referred to as need for sensation, is one personality trait that has been effective in assisting researchers with the targeting of at-risk groups via media campaigns. According to Zuckerman (1994), “sensation seeking is a trait defined by the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for such experiences” (p. 27). The sensation-seeking trait is not dominant in all humans, however. Individuals differ in

their need to find new and exciting experiences. Some individuals are classified as high sensation seekers (HSS) because they prefer experiences that are novel, intense, complex, and unusual, while low sensation seekers (LSS) tend to prefer experiences with low levels of these characteristics. Due to their need for exciting experiences, high sensation seekers are more likely than low sensation seekers to engage in behaviors that may negatively influence their health (Roberti, 2004; Zuckerman, 1994; 2007) and, for this reason, they are the targets of health campaigns.

In addition to affecting behaviors, the sensation-seeking trait also influences the type of message that will draw a person's attention. According to the activation model of information exposure (AMIE), high sensation seekers will only attend to high sensation value messages while low sensation seekers will only attend to messages low in sensation value (Donohew, Lorch, & Palmgreen, 1998). Palmgreen et al. (1991) originally defined message sensation value "as the degree to which formal and content audio-visual features of a televised message elicit sensory, affective, and arousal responses" (p. 219). High sensation value messages (HSVM) elicit high levels of sensory, affective, and arousal responses, while low sensation value messages (LSVM) elicit limited levels of these characteristics.

Since the theory's development, two scales were created to assess the sensation value of a message. These scales aid in ensuring that high sensation value messages are accurately differentiated from low, which facilitates theory testing and media campaign development. However, all scales developed to assess the sensation value of a message focus on video messages (e.g., Morgan, Palmgreen, Stephenson, Hoyle, & Lorch, 2003; Palmgreen, Stephenson, Everett, Basheart, & Francies, 2002). Consequently, the goal of

this research project was to develop a scale that assesses the sensation value of print messages. Specifically, this research was aimed at determining if the dimensions used to assess the sensation value of video messages can be used to assess the sensation value of print messages. After the dimensions of the scale for assessing the sensation value of print messages were finalized, analyses were conducted to determine if the scale and its subscales were stable across sensation-seeking levels and different types of messages. It was also investigated whether or not the new scale and its subscales could successfully distinguish between high and low sensation value messages. The internal consistency of the composite scale and its subscales were also reported.

Additionally, this research sought to establish the construct validity of the new scale and its subscales by investigating if they have convergent and divergent validity. The convergent validity of the new scale and its subscales were tested by examining whether the new scale and its subscales have a positive linear relationship with measures of variables with which they are expected to have such a relationship: affect, sensory processing, and cognitive processing (see Palmgreen et al., 2002, Stephenson & Palmgreen, 2001). On the other hand, the divergent validity of the new scale and its subscales were tested by investigating whether scores from the new scales did not have a relationship with scores from measures of variables with which they were expected not to have a relationship. The three variables with which the sensation value of a message should not have a relationship are personal involvement, argument strength, and communication apprehension (McCroskey, 1982; Stephenson & Palmgreen, 2001; Zhao, Strasser, Cappella, Lerman, & Fishbein, 2011). In addition to inquiring if the new scale and its subscales have construct validity, this research project also involved investigating



whether or not the new scale aimed at assessing the sensation value of a print message has predictive validity. Predictive validity refers to the ability of a scale to forecast a particular outcome. Previous research conducted by Noar, Palmgreen, Zimmerman, Lustria, and Lu (2010) highlighted that the sensation value of a message can be used to predict if a message will be effective at convincing a target group not to engage in a particular behavior. Additionally, it was expected that the sensation value of a message would predict attitudes towards the ad/ad liking (see Donohew et al., 1998).

In general, this research was conducted to establish the reliability and validity of a scale developed to assess the sensation value of print messages. It is important to confirm the reliability of the new scale because this determines whether it will yield similar results when used in future studies (Devellis, 2012). Also, establishing the validity of the new scale is important as this helps to ensure that covariance among items is due to the variable of interest and not some other factor. The following chapter provides a review of foundational research associated with the message sensation value construct.

## Chapter Two: Literature Review

The current chapter outlines the research findings and theoretical assumptions that guided this project. Specifically, this chapter starts with a review of sensation seeking, as this trait informed the development of the message sensation value construct. After which, an overview of the theory (i.e., the activation model of information exposure) the new scale was developed to test is provided. Following an overview of the activation model of information exposure, the evolution of the message sensation value construct is discussed. This chapter also provides a review of the literature that was used to determine the scale's response format and what scale items and dimension would be used to assess the sensation value of a print message. Following a review of literature that informed the scale's development, an overview of the relationship the message sensation value variable has with other variables is discussed. Lastly, the benefits of creating a scale aimed at assessing the sensation value of a print message is highlighted.

### **Sensation Seeking**

As previously mentioned, “sensation seeking is a trait defined by the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for such experiences” (Zuckerman, 1994, p. 27). Additionally, it was stated that the extent to which the trait is dominant varies from person to person. Zuckerman (1994, 2007) suggests that Gray's theory of brain function and behavior provides an explanation for why individuals differ in their need for sensation (Fowles, 1980, 1987; Gray, 1972, 1981, 1987a, 1987b, 1990). According to Gray (1972), an individual's personality is determined by two motivational systems: the behavioral

activation system (BAS) and the behavioral inhibition system (BIS). Both systems are believed to be responsible for regulating human behavior. The BAS system, which is more active in high than low sensation seekers, is responsible for motivating an individual to seek stimuli that will result in reward and pleasure. It also prompts individuals to explore their environment and to engage in novel and exciting stimuli. Neurologically, the BAS is associated with dopaminergic systems, also known as the reward pathway. The dopaminergic pathway begins in the ventral tegmental to the limbic system, which is comprised of the nucleus accumbens, amygdala, and hippocampus (Dawe, Gullo, & Luxton, 2004).

In contrast with the BAS, the BIS system, which is more active in low than high sensation seekers, is responsible for preventing individuals from engaging in activities that they believe might result in punishment and/or negative outcomes (Gray, 1972, 1994). Therefore, the BIS encourages individuals to be cautious and to avoid potentially dangerous novel stimuli. Biologically, the BIS system is associated with the septo-hippocampal system, which includes the hippocampal campus proper, dentate gyrus, entorhinal cortex, subicular area, and the posterior cingulated cortex (Smits & Kuppens, 2005).

According to Zuckerman (1994, 2007), because of the domination of the BAS over the BIS in high sensation seekers, they tend to prefer activities that are novel, intense, complex, and unusual. For instance, high sensation seekers tend to engage in risky behaviors, such as smoking, excess alcohol consumption, and promiscuous sexual activity (Mehrotra, Noar, Zimmerman, & Palmgreen, 2009; Roberti, 2004). In contrast to high sensation seekers, low sensation seekers, whose BIS is more active than their BAS, tend to

prefer activities that are less stimulating. In addition to being linked to activity preference, an individual's sensation-seeking tendencies have also been linked to message preference in a theory referred to as the activation model of information exposure.

### **The Activation Model of Information Exposure**

According to the activation model of information exposure (AMIE), individuals have a desired level of arousal at which they feel comfortable (Donohew, Finn, & Christ, 1988). Arousal refers to physiological, emotional, and psychological changes individuals experience after being exposed to stimuli. If a message is not successful at reaching a person's desired level of arousal, it will not hold his or her attention. However, if the message exceeds the optimal arousal level at which an individual feels comfortable, the individual will stop attending to the message. Consequently, a message must also maintain a person's desired level of arousal in order to sustain attention. Based on this assumption, the activation model of information exposure suggests that messages providing high instead of low levels of arousal are more likely to hold the attention of high sensation seekers (Donohew et al., 1998). In contrast, low sensation seekers are more likely to attend to messages that provide low levels of arousal because messages that cause high levels of arousal tend to exceed the level at which they feel comfortable. Donohew et al. caution, however, that in some instances individuals will attend to messages that exceed or are below their desired level of arousal because they view the message as important or relevant to them. As previously mentioned, the ability of a message to arouse an individual is known as its sensation value.

Scholars (e.g., Everett & Palmgreen, 1995; Palmgreen et al., 1991; Palmgreen et al., 2007) have conducted several studies aimed at testing the assumptions associated

with the activation model of information exposure. However, it should be highlighted that when the assumptions associated with AMIE are being tested, the variables used to act as a proxy for attention differ based on the purpose of the study. Variables used to determine if an individual attends to a video message include recall as well as changes in heart rate, skin conductance, behavioral intention, attitudes, and different types of message processing (e.g., Everett & Palmgreen, 1995; Palmgreen et al., 1991; Palmgreen et al., 2007).

One study conducted to test the model, which supported its assumptions, is Palmgreen et al.'s (1991) study. An analysis of the study's data showed that video messages perceived to be high in sensation value were more effective at increasing high sensation seekers' intention not to use drugs, while low sensation value video messages were more effective at strengthening low sensation seekers' intention not to use drugs. The activation model of information exposure was also supported when Palmgreen et al. (2001) conducted a large-scale interrupted-time series campaign in Lexington, Kentucky, and Knoxville, Tennessee, aimed at reducing marijuana use among high sensation seekers in seventh to tenth grade. Palmgreen and colleagues found that, after being exposed to three campaigns that consisted of only high sensation value messages, high sensation seekers were more likely not to have used marijuana in the last 30 days, for up to several months after each campaign. As expected, the high sensation value messages did not have an impact on low sensation seekers. Additionally, Palmgreen et al. (1995) conducted a five-month televised anti-drug campaign in Lexington, Kentucky, which involved embedding anti-drug high sensation value messages in television programming most watched by high sensation seekers. The public service announcements (PSA) informed

viewers that there are other methods, apart from drug use, to experience excitement. It also provided viewers with a hotline number to call in order to learn more about thrilling non-drug related activities. The results of the study showed high sensation seekers, the target group, were more likely than low sensation seekers to call the hotline recommended in the public service announcement. Consequently, these findings are consistent with the AMIE that high sensation seekers are more likely to attend to high sensation value messages than low sensation seekers.

Even though some research findings (e.g., Palmgreen et al., 2001; Palmgreen et al., 2007) have been consistent with the AMIE, there are other studies (e.g. Niederdeppe, Davis, Farrelly, & Yarsevich, 2007; Stephenson & Palmgreen, 2001) that have produced results inconsistent with the assumptions of the theory. One finding that contradicts the AMIE but that has been supported by several studies is that low sensation seekers will attend to high sensation value messages. For instance, data from Stephenson and Palmgreen (2001) suggest that high sensation value video messages are successful at gaining the attention of both high and low sensation seekers. Specifically, the results of the Stephenson and Palmgreen study revealed that high sensation value messages facilitate greater narrative, cognitive, and sensory processing among high and low sensation seekers. Findings from Niederdeppe et al. (2007) also support the belief that high sensation value messages appeal to both high and low sensation seekers. The authors found that four stylistic features (frequent edits, frequent unrelated cuts, intense images, and sound saturation) associated with high sensation value messages led to significantly greater and similar levels of ad recall among both high and low sensation seekers.

In addition to finding that high sensation value messages can gain the attention of

low sensation seekers, some scholars found no interaction effect among sensation seeking, message sensation value, and measures assessing attention. For instance, a study by Helme, Donohew, Baier, and Zitterman (2007) revealed that there was no significant difference between high and low sensation value messages' ability to increase high sensation seekers' negative attitudes towards smoking, behavioral intention not to smoke, self-efficacy, and perceived message effectiveness. Similar results were found for low sensation seekers. Helme et al. suggest that one possible reason low sensation value messages were just as effective as high at reaching high sensation seekers is that messages coded as low in sensation value were actually high in sensation value. The finding regarding low sensation seekers was not surprising, as previous studies suggest that low sensation seekers attend to both low and high sensation value messages (e.g., Palmgreen et al., 1991; Stephenson & Palmgreen, 2001). Therefore, problematic coding would not affect study results associated with low sensation seekers.

As noted by theory and previous research, message sensation value, like sensation seeking, is a key variable in determining whether a message will gain the attention of high or low sensation seekers. Therefore, if a message's sensation value is not accurately assessed, it could lead to issues with theory testing and campaign development. The following section provides a review of the message sensation value concept and measures that were created to assess the variable's level of presence in a message.

### **Message Sensation Value and Perceived Message Sensation Value**

As previously mentioned, message sensation value was originally defined "as the degree to which formal and content audio-visual features of a televised message elicit sensory, affective, and arousal responses" (Palmgreen et al., 1991, p. 219). However,

scholars now suggest that message sensation value can be conceptualized in two ways (Morgan et al., 2003). First, it can be interpreted as the attributes of a message that lead to sensory, affective, and arousal responses. Message attributes refers to a message's structural and content features. Morgan et al. divided structural features into two categories: visual (e.g., number of cuts and edits, presence or absence of intense images, etc.) and audio (e.g., presence or absence of sound effects, music, etc.). Additionally, Morgan et al. cautioned that the content features of a message do not refer to the arguments provided in the public service announcement (PSA) but rather to how the narrative of the PSA is constructed. For instance, does the narrative have a surprise ending or does the narrative violate the usual PSA format? Second, message sensation value can be interpreted as an individual's sensory, affective, and arousal responses to a message's features. In order to distinguish the two conceptualizations, the term *message sensation value* (MSV) is used to refer to the attributes of a message while *perceived message sensation value* (PMSV) is used to refer to a receiver's response to the characteristics of a message.

Scales were developed to assess both PMSV and MSV; however, both scales focus on video messages. The *video message sensation value (MSV) scale* involves using the presence or absence of certain objective characteristics (e.g., number of cuts, sound saturation, intense images, etc.) of a televised message to determine its sensation value (see Morgan et al., 2003). This scale is based on the idea that the characteristics of a message can be manipulated to increase or decrease a message's ability to arouse an individual. Using the video message sensation value scale, Morgan et al. found that messages high in sensation value tend to have a surprise twist ending, feature acting out



rather than describing the negative effects of a risky behavior, and employ background noise; low sensation value messages lack these characteristics.

The *video perceived message sensation value (PMSV) scale* is a 17-item 7-point semantic-differential scale. Semantic-differential scales contain bipolar adjectives (e.g., *novel-ordinary*, *usual-unusual*, and *not graphic-graphic*) with one end of the scale representing the absence of a variable while the other represents the presence of the variable (Devellis, 2012). Unlike the video message sensation value scale, the video PMSV scale relies on audience perception to assess the sensation value of a message (see Everett, 1993; Everett & Palmgreen, 1995; Palmgreen et al., 2002). Specifically, the video PMSV scale involves the use of audience perception to determine the degree to which message characteristics known to influence the sensation value of a message are present. The video PMSV scale has three dimensions: novelty, dramatic impact, and emotional arousal (see Palmgreen et al., 2002). As a result, respondents' perceptions are used to determine the degree to which a message is novel, dramatic, and emotionally arousing. The scale is based on the premise that messages rated by individuals as novel, emotionally arousing, and dramatic are classified as having high perceived message sensation value, while messages that have lower levels of these characteristics are viewed as having low perceived message sensation value. The video PMSV scale has consistently yielded high coefficient alphas such as .87 and .93 (see Palmgreen et al., 2002; Stephenson, 2002).

Since the development of the 17-item video PMSV scale, a shortened version of the scale has been employed in several studies (e.g., Noar et al., 2010; Palmgreen, Lorch, Stephenson, Hoyle, & Donohew, 2007). This shortened version is a 5-item scale, which asked the extent to which a message is *emotional*, *intense*, *exciting*, *powerful*, and

*dramatic*. Additionally, the 17-item video PMSV scale was constructed using a 7-point semantic-differential response format, while the 5-item video PMSV scale has a 5-point Likert-type response format. The shorter version of the scale has also yielded good coefficient alphas such as .81 and .84.

Although the existing MSV and PMSV scales are both good measures for assessing the sensation value of messages, as previously mentioned, they were both specifically developed to evaluate video messages. For example, both scales use audio content to determine the sensation value of a message (e.g., strength of soundtrack, presence or absence of background sound throughout the public service announcement, etc.). Therefore, researchers do not know if the activation model of information exposure is applicable to print messages. The main reason only video scales were developed to assess the sensation value of a message is because The National Institute on Drug Abuse, which was responsible for funding the research on message sensation value, was only interested in video messages (P. Palmgreen, personal communication, May 29, 2013). Consequently, since the existing scales aimed at assessing the sensation value of a message only focus on videos, the goal of this study is to develop a reliable and valid scale that uses human perception to assess the sensation value of print messages. Specifically, this scale development project will focus on creating a scale that assesses the PMSV of a print message instead of the MSV because participants' perception instead of structural characteristics of the message itself will ultimately determine if a message is high or low in sensation value (see Helme et al., 2007). Because perception will be employed to determine whether a print message is high or low in sensation value, the new scale will be

referred to as the *perceived message sensation value scale for print messages* or *print perceived message sensation value scale*.

Palmgreen et al. (2002) suggested that if items assessing a message's audio features (e.g., *weak sound track-strong sound track* and *strong sound effects-weak sound effects*) were removed from the PMSV scale for video messages, then the remaining items could be used to assess the sensation value of print messages. However, no research has been conducted to confirm this speculation. In addition, removing items from a scale has the potential to affect the scale's reliability and validity. Therefore, while the PMSV scale for video messages might be reliable and valid when questions regarding audio are present, there is no guarantee that it will be reliable and valid after audio questions are removed.

Thus far, the perceived message sensation value construct has been defined. Additionally, it has been highlighted that a print PMSV scale needs to be developed, as the existing PMSV scale only evaluates the sensation value of video messages. Consequently, the following section outlines how the print PMSV scale was created. Additionally, it highlights how research associated with the video PMSV scale was used to guide the development of the print PMSV scale.

### **Developing the Perceived Message Sensation Value Scale for Print Messages**

#### **Response Format**

The print PMSV scale was developed using the same response format as the video PMSV scale, a 7-point semantic-differential format (see Palmgreen et al., 2002). This response format was selected because, like the video PMSV scale, the purpose of the PMSV scale for print messages is to assess the degree to which a particular message

characteristic is perceived to be present. When creating a scale, in addition to selecting a response format, it is important to identify the scale's dimensions. The dimensions of a scale are usually determined based on previous research associated with the concept being measured. Identifying the dimensions of the print PMSV scale will aid in developing potential scale items. The following section highlights the research that influenced the decisions regarding the dimensions that will comprise the initial print PMSV scale.

### **Dimensions of the Perceived Message Sensation Value Scale for Print Messages**

The initial PMSV scale for print messages was created with a focus on the same dimensions (novelty, dramatic impact, and emotional arousal) associated with the video PMSV scale. When the preliminary video PMSV scale was created it had four dimensions (see Everett & Palmgreen, 1995; Palmgreen et al., 2002): emotional (i.e., an evaluation of the extent to which a message is perceived as graphic and dramatic), sensory (i.e., an evaluation of the quality of specific message features), novelty (i.e., an evaluation of the extent to which a message is perceived as unusual and creative), and psychological (an evaluation of the extent to which a message is perceived as exciting and stimulating).

The initial dimensions of the video PMSV scale were selected based on the conceptual definition of the perceived message sensation value construct. As previously stated, perceived message sensation value is the level of emotional, sensory, and arousal responses elicited by a message (Palmgreen et al., 1991). Consequently, Everett and Palmgreen (1995) believed in order to determine the perceived sensation value of a video message, scale items should assess each of the different responses (emotional, sensory, and psychological arousal) that an individual experiences as a result of exposure to a

message. The initial video PMSV scale was based on the assumption that messages that elicit high levels of emotional, sensory, and psychological arousal responses are considered high in sensation value, while those that elicit low levels of emotional, sensory, and psychological arousal responses are low in sensation value. Additionally, research findings suggest (see Zuckerman, 2007) that the degree to which certain message characteristics are present in a message correlates positively with the levels of sensory, emotional, and psychological arousal experienced by a receiver. Following this line of reasoning, scale items assessing the degree to which particular message characteristics were present in a video message were used to determine the levels of emotional, sensory, and psychological responses elicited by that message. Even though novelty is not a type of response, it was included as a dimension of the initial video PMSV scale because if a message is novel it elicits more arousal than a message that lacks this characteristic (see Neary & Zuckerman, 1976; Zuckerman, 2007).

Although the preliminary video PMSV scale was initially designed as a four-dimension scale (sensory, emotional, psychological, and novelty), factor analyses revealed that three factors (novelty, dramatic impact, and emotional arousal) instead of four were responsible for the variation among items (see Everett & Palmgreen, 1995; Palmgreen et al, 2002). Specifically, the factor analyses revealed that the items developed to assess novelty loaded under novelty. However, the items created to assess the other three dimensions (sensory, emotional, and psychological) loaded under two dimensions (emotional arousal and a new dimension named dramatic impact). This factor analysis highlighted that it is difficult to assess certain types of responses individually, as responses are usually tied together and they share indicators. For instance, an item

evaluating if a message is exciting can be an indicator of both an emotional and psychological response instead of being linked to one response type. Therefore, based on the factors that emerged, Palmgreen et al. (2002) realized that it is best to have scale dimensions that assess the presence and absence of message characteristics that are known to influence sensory, emotional, and arousal responses, instead of trying to assess each response separately. Consequently, high levels of these characteristics (novelty, emotional arousal, and dramatic impact) mean the message is high in sensation value (i.e., elicits high levels of sensory, emotional, and arousal responses) while low levels of these characteristics indicate the message is low in sensation value (i.e., elicits low levels of sensory, emotional, and arousal responses).

As previously stated, the PMSV scale for print messages will consist of the same dimensions (novelty, emotional arousal, and dramatic impact) as the final video PMSV scale. In order to gain a better understanding of the print PMSV scale's dimensions, each dimension will be explored in detail. The first dimension that will be explored is novelty.

**Novelty.** The novelty dimension of a print PMSV scale is aimed at assessing whether the receiver previously viewed the message. It is also used to assess whether a message's format is similar to previous messages viewed by the receiver. Novelty is one of the underlying constructs that influences PMSV because if a message is novel, this can increase the message's sensation value, while if a message lacks novelty, its sensation value can decrease (see Palmgreen et al., 2002). Another reason the novelty dimension from the video PMSV scale was also included in the print PMSV scale is that high sensation seekers prefer novel stimuli, while low sensation seekers prefer stimuli that lack this characteristic (Donohew et al., 1994, 1998). The preference of high and low sensation

seekers was used to inform the PMSV scale development process, as the characteristics of high sensation value messages are similar to the characteristics preferred by high sensation seekers and the characteristics of low sensation value messages are similar to the characteristics preferred by low sensation seekers. Consequently, the preferences of high and low sensation seekers help to highlight variables, which, if assessed, can determine if a message is high or low in sensation value. Additionally, this dimension was selected because it has been successfully used as a part of the video PMSV scale to distinguish high from low sensation value messages, which is the purpose of the print PMSV scale (e.g., Morgan et al., 2013; Stephenson, 2002; Stephenson & Palmgreen, 2001).

The perceived novelty subscale associated with Palmgreen et al.'s (2002) video PMSV scale contains three items (*novel-ordinary*, *unique-common*, *unusual-usual*). These items were included in the print novelty subscale because they are characteristics that can also be used to describe print messages. Because one of the goals of this research project was to identify the best items for assessing the novelty of a message, the preliminary print novelty subscale also included items that are not a part of the video novelty subscale. Based on the judgment of PMSV experts, the new items aided in ensuring that the subscale assessed different facets of the novelty dimension (see Furr, 2012). For a complete list of the items that were included in the preliminary print novelty subscale, see Appendix A. The next dimension of PMSV that will be explored is emotional arousal.

**Emotional arousal.** The level of emotions elicited by a message influences its perceived sensation value. Messages that elicit strong positive (e.g., enthusiastic, excited, etc.) and negative (e.g., nervous, afraid, etc.) affect are usually high in sensation value,

while those that elicit weak emotional responses are usually low in sensation value (see Palmgreen et al., 2002; Kang & Cappella, 2008). Consequently, a subscale that focuses on the extent to which a message is emotionally arousing is necessary, as this can be used to distinguish high from low sensation value messages, which is the main purpose for the development of this scale.

It has been suggested that messages containing the structural features (e.g., surprise twist ending) associated with high sensation value messages elicited greater emotional responses than messages that lacked these features (i.e., low sensation value messages). For instance, results from Kang and Cappella's (2008) study showed that responses of anger and sadness were greater for messages that contained the structural features associated with high sensation value messages compared to messages that did not contain these features (i.e., low sensation value messages). This further supports the hypothesis that a relationship exists between emotional responses and the sensation value of a message. It also supports the idea that assessing whether or not a message is emotionally arousing can be used to determine a message's PMSV level.

Palmgreen and colleagues' (2002) video emotional arousal scale contains eight items (i.e., *emotional-unemotional, boring-exciting, powerful impact-weak impact, arousing-not arousing, involving-not involving, stimulating-not stimulating, strong visuals-weak visuals, weak sound effects-strong sound effects*). Only seven of the items from the video emotional arousal subscale were adopted for the preliminary print PMSV scale because the eighth item does not apply to print messages since it evaluates the sound component of a message. In addition to the items from the video perceived emotional arousal subscale, other items were added to the preliminary print emotional



arousal subscale. These additional items were added because, based on the judgments of PMSV experts, these new items contributed to ensuring that different facets of the emotional arousal construct were being assessed (see Furr, 2012). See Appendix A for a list of the items that comprised the preliminary print emotional arousal subscale.

Dramatic impact is the next dimension that will be explored.

**Dramatic impact.** The dramatic impact subscale focuses on whether a message is extreme or has a striking effect. Messages perceived as high in sensation value tend to be dramatic, while messages perceived as low in sensation value are not dramatic (Donohew et al., 1994). This shows that variation in the dramatic nature of a message has the potential to influence its sensation value. Consequently, the print PMSV scale should contain a dimension that focuses on assessing a message's dramatic impact, as the presence or absence of dramatic content can be used to distinguish high from low sensation value messages. The dramatic nature of a message is influenced by several characteristics. One known characteristic is the intensity of a message.

**Intensity.** Intensity refers to whether a message can be classified as extreme or powerful. Word choice, color, and visuals are examples of features that can influence the perceived intensity of a message. High sensation value messages have been described as intense, while low sensation value messages have limited levels of this characteristic (Donohew et al., 1994, 1998). PMSV research is based on the premise that messages that provide higher levels of arousal are high in sensation value, while those that provide limited levels of arousal are low in sensation value. The intensity of words and visuals used has been shown to influence the level of arousal a person experiences. For instance, Smith, Perlstein, Davidson, and Michael (1986) exposed individuals to both loaded and

neutral words. Results showed that high and low sensation seekers were more physiologically aroused by loaded words than by neutral words. Smith, Davidson, Perlstein, and Gonzales (1990) also found similar results. In their study, Smith and colleagues exposed high and low sensation seekers to sexual words and visuals that were high, medium, and low in intensity and measured their physiological arousal. A positive relationship was observed between intensity and arousal.

**Graphic.** In addition to intensity, another characteristic that influences the dramatic impact of a message is its graphic nature. A message can be considered graphic if it is revolting, disgusting, gross, gruesome, etc. (e.g., Lawson, Gauer, & Hurst, 2012). Messages that induce fear can also be classified as graphic (e.g., Tamborini & Stiff, 1987). Additionally, messages can be categorized as graphic if they provide too much detail or reveal information that is considered inappropriate or taboo (Donohew et al., 1998). Messages high in sensation value tend to be described as graphic, while messages low in sensation value are described as having less of this characteristic. This highlights that variations in the graphic nature of a message have the potential to influence its sensation value. As a result, items assessing the degree to which a message is graphic were included in the dramatic impact subscale aimed at assessing the perceived sensation value of print messages.

The assumption that high sensation value messages are graphic, while low sensation value messages lack a graphic nature, is supported by research looking at high and low sensation seekers' reaction to graphic material. Research results show that high sensation seekers are more likely than low to select graphic messages. For instance, Zuckerman and Litle's (1986) study revealed that male and female high sensation seekers

were more likely than low sensation seekers to show interest in and enjoy watching violence or death in real life. Additionally, both male and female high sensation seekers were more likely than low to have a positive attitude towards pornography. The preferences of high and low sensation seekers were taken into consideration during the development of the preliminary print PMSV scale, as message content preferred by high sensation seekers usually matches the content of high sensation value messages, and message content preferred by low sensation seekers usually matches the content of low sensation value messages (Donohew et al., 1998). Therefore, this helps confirm that high sensation value messages are graphic, while low sensation value messages have limited levels of this characteristic.

The dramatic impact subscale of the video PMSV scale contains six items (*dramatic-not dramatic, not graphic-graphic, not creative-creative, didn't give me goose bumps-gave me goose bumps, not intense-intense, and strong sound track-weak sound track*). Only five of these items were employed for the print PMSV scale because one of the items focused on the audio component of a message, which is not applicable to print messages. Items that were not a part of the video dramatic impact subscale were also added to the preliminary print dramatic impact subscale. Additional items were included because, according to the judgment of PMSV experts, these items assisted in ensuring that different aspects of the dramatic impact construct were being assessed (see Devellis, 2012; Furr, 2012). For a list of the items that comprised the preliminary print dramatic impact subscale, see Appendix A. Even though only three dimensions (novelty, dramatic impact, and emotional arousal) are being explored for inclusion in the print PMSV scale,

there are other dimensions (physiological arousal, complexity, and ambiguity) whose absence from the print PMSV scale might be questioned (see Appendix B).

The current section highlights the three dimensions of the initial print PMSV scale. Identifying the dimensions of a scale is necessary when creating a measure of PMSV, as the dimensions included influence the items that will comprise the scale. However, after the scale is developed and its dimensions are confirmed through various statistical procedures (i.e., factor analyses), the researcher also has to establish the scale's construct and predictive validity.

### **Establishing the Construct and Predictive Validity of the Perceived Message**

#### **Sensation Value Scale for Print Messages**

##### **Construct Validity**

As previously mentioned, establishing the construct validity of a scale involves confirming that the scale has convergent and/or divergent validity (Campbell & Fiske, 1959; Goodwin, 2009). Convergent validity requires testing whether the new scale's items correlate positively with measures with which it is theoretically expected to converge. On the other hand, divergent validity involves the researcher showing proof that the new scale's items do not correlate with measures with which theoretically it does not have a relationship.

**Convergent validity.** In prior studies (e.g., Morgan et al., 2003; Stephenson & Palmgreen, 2001), the construct validity of the PMSV scale for video messages was established by showing proof of only convergent validity and not divergent validity. Convergent validity has been established for the video PMSV scale by demonstrating that it correlates positively with measures with which it has a theoretical relationship: affect,

narrative processing, sensory processing, cognitive processing, and message sensation value.

In an article by Palmgreen et al. (2002) consisting of two different studies, the authors aimed to establish the validity and reliability of the PMSV scale for video messages. In both studies the researchers investigated whether the PMSV scale for video messages correlated positively with measures of affect. The results from the first study, which involved the use of anti-marijuana public service announcements, showed that for high and low sensation seekers the composite video PMSV scale positively correlated with the two subscales (empathic distress and anxious excitement) comprising the affect measure. The affect measure used was created from scales aimed at assessing an individual's emotional response to advertisements (see Batra & Holbrook, 1990; Chaudhuri & Buck, 1995). Additionally, Palmgreen and colleagues (2001) found that for high sensation seekers, the subscales of the video PMSV scale labeled emotional arousal and dramatic impact correlated positively with the affect subscales labeled empathic distress and anxious excitement. On the other hand, for low sensation seekers, the dramatic impact subscale correlated positively with the empathic distress and anxious excitement affect subscales. However, it was revealed that for low sensation seekers, even though the emotional arousal subscale correlated positively with the empathic distress subscale, it did not correlate with the anxious excitement subscale. Lastly, the results from the first study showed that for both high and low sensation seekers, the PMSV subscale, novelty, was not related to subscales measuring empathic distress and anxious excitement.

In the second study, using anti-cocaine public service announcements, Palmgreen et al. (2002) also explored the relationship between the video PMSV and affect; however,

Watson, Clark, and Tellegen's (1988) positive affect and negative affect scale (PANAS) was employed. A factor analysis revealed that the PANAS had three dimensions instead of the expected two (positive affect subscale and negative affect subscale). One of the dimensions, as expected, assessed negative affect, but two instead of one appeared to assess positive affect. The results of the study also showed that for high sensation seekers, the composite PMSV scale and two of its subscales (dramatic impact and emotional arousal) had a positive significant relationship with the subscales measuring positive and negative affect. However, for high sensation seekers, the PMSV subscale, novelty, did not correlate with one of the subscales measuring positive affect, but it did correlate with the subscale measuring negative affect and the second subscale measuring positive affect. When the data associated with low sensation seekers was analyzed, the findings were similar to the relationships found for high sensation seekers, with the exception that the PMSV subscale, novelty, was not related to the scale measuring negative affect. The confirmed positive relationship between the PMSV scale for video messages and affect measures supports the convergent validity of the video PMSV scale, as theoretical assumptions suggest that as the PMSV of a message increases so does the level of emotions it elicits.

Cognitive processing is another variable that has been used to establish the convergent validity of the video PMSV scale. According to Stephenson and Palmgreen (2001), cognitive processing refers to "when individuals are motivated to think, consider, or scrutinize a message" (p. 51). Cognitive processing is similar to the elaboration likelihood model's central route processing (Petty & Cacioppo, 1986a, 1986b; Petty, Cacioppo, & Schumann, 1983). The premise of the elaboration likelihood model (ELM)

states that persuasion to change attitude, beliefs, or behavior occurs via two processing routes: central and peripheral. When an individual's peripheral route is activated, persuasive effects are the result of factors apart from the message's content, such as the gender, expertise, or likeability of the source. On the other hand, when central route processing occurs, individuals carefully analyze a message before determining the impact it will have on their attitude towards an object or their point of view.

The elaboration likelihood model and other dual processing models suggests that cognitive processing occurs because of factors such as personal involvement and need for cognition (see Areni, Ferrell, & Wilcox, 2000; Petty, Cacioppo, & Schumann, 1983; Haugtvedt, Petty, & Cacioppo, 1992). However, Stephenson and Palmgreen (2001) suggest that because high sensation seekers are more likely to attend to high sensation value messages, it is expected that PMSV will have a significant positive correlation with cognitive processing. This theoretical assumption was confirmed in several studies using the video PMSV scale (e.g., Palmgreen et al., 2002; Stephenson & Palmgreen, 2001). Additionally, based on the underlying assumptions of ELM and AMIE it was expected that, for low sensation seekers, a negative correlation would exist between PMSV and cognitive processing. However, research results have contradicted this theoretical assumption, as findings suggest that, for low sensation seekers, a positive relationship exists between the video PMSV and the cognitive processing scale (e.g., Stephenson & Palmgreen, 2001). Also, in a previous study by Palmgreen et al. (2002), the composite video PMSV scale and two subscales (dramatic impact and emotional arousal) have positively correlated with a measure of cognitive processing for both high and low sensation seekers. However, research results show that the video PMSV subscale,

novelty, does not correlate with the cognitive processing scale for both high and low sensation seekers.

Palmgreen et al. (2002) also used the video PMSV scale's correlation with narrative processing to show proof of convergent validity. Narrative processing is defined as "a viewer's attention to the message's character(s), situations involving these characters, and storyline" (Stephenson & Palmgreen, 2001, p. 55). According to Slater & Rouner (1996), there are two reasons individuals engage in narrative processing: narrative interest and identification. Narrative interest refers to the extent to which a message's storyline is engrossing, while identification refers to the extent to which message receivers view themselves as similar to the characters present in the message. Stephenson and Palmgreen suggested that high sensation seekers should find it easier to engage in narrative processing when exposed to a message high in sensation value because usually these messages have content that is appealing to this group (e.g., dramatic and novel storylines and characters). This line of reasoning was supported, as data from Stephenson and Palmgreen's study showed that, for high sensation seekers, a positive relationship exists between the PMSV scale and the narrative processing scale. Also, based on the ELM and the AMIE it was expected that, for low sensation seekers, a negative relationship exists between the PMSV scale and the narrative processing scale; this hypothesis was not supported, as a positive relationship was observed. Additionally, Palmgreen et al. (2002) found that for both high and low sensation seekers, a positive relationship exists between the composite video PMSV scale and the narrative processing scale. They also found that for both high and low sensation seekers the subscales of the video PMSV scale, emotional arousal and dramatic impact, correlated positively with the



narrative processing scale, but no relationship was found between the novelty subscale and narrative processing scale.

Establishing the convergent validity of the video PMSV scale also involved exploring how well the scale correlated with a measure of sensory processing. Sensory processing is defined as “attention dedicated to the ad’s soundtrack, sound effects and visuals” (Stephenson & Palmgreen, 2001, p.54). Therefore, sensory processing can be viewed as the attention given to the physical characteristics of a message. According to Stephenson and Palmgreen, high sensation value video messages contain several characteristics that promote sensory processing among high sensation seeking individuals. Following this logic, scholars (Palmgreen et al., 2002; Stephenson & Palmgreen, 2001) investigated whether a positive relationship exists between the video PMSV scale and a measure of sensory processing for high sensation seekers; the data supported this hypothesis. The authors also tested whether, for low sensation seekers, a negative relationship exists between the composite PMSV scale for video messages and the sensory processing scale; this relationship was not supported, and instead a positive relationship was revealed. Additionally, data analysis from Palmgreen et al. (2002) suggests that for both high and low sensations seekers, a positive relationship exists between the sensory processing measure and two of the video PMSV scale’s dimensions (emotional arousal and dramatic impact). No relationship exists between the video PMSV subscale, novelty, and the sensory processing scale for both high and low sensation seekers.

Morgan et al. (2003) also conducted a study establishing the convergent validity of the video PMSV scale. The authors found that scores on the total video MSV scale correlated positively with scores on the composite video PMSV scale. Additionally, the

research results indicated that the total video MSV scale correlated positively with all the dimensions of the video PMSV scale (emotional arousal, dramatic impact, and novelty). The total video PMSV scale and its dimensions also correlated positively with scores from each individual message feature that comprises the video MSV scale: intense images, unexpected format, sound saturation, and surprise twist ending.

Through extensive research, scholars have established the convergent validity of the video PMSV scale. Researchers (e.g., Morgan et al., 2003; Palmgreen et al., 2002; Stephenson & Palmgreen, 2001) have shown that the video PMSV scale significantly correlates as expected with measures of affect, cognitive processing, narrative processing, sensory processing, and message sensation value. Since establishing the convergent validity of a scale is essential before it can be deemed an accurate measure of a concept, the convergent validity of the PMSV scale for print messages will also be established. Some of the same variables used to establish the convergent validity of the video PMSV scale will be employed to establish the convergent validity of the PMSV scale for print messages. Measures that will be employed to assess the convergent validity of the PMSV scale for print messages are those that assess affect, sensory processing, and cognitive processing. These variables were selected because, regardless of the content of the print message, these variables would be applicable. For instance, every print message's influence on affect, sensory processing, and cognitive processing can be assessed. However, narrative processing will not be assessed, as it only occurs when certain message features are present in a print message. For example, narrative processing requires identification with a character or storyline associated with a message; however, not all print messages have a storyline and/or include characters. In addition to

establishing the convergent validity of a scale, it is also important to show that a scale has divergent validity.

**Divergent validity.** As previously mentioned, establishing the divergent validity of the print PMSV scale involves showing that the scale does not have a relationship with variables with which, theoretically, there should not be a relationship. Three variables that do not have a theoretical relationship with PMSV are personal involvement, argument strength, and communication apprehension. Petty and Cacioppo (1979) define personal involvement as “the extent to which the attitudinal issue under consideration is of personal importance” (p. 1915). According to assumptions associated with the elaboration likelihood model, personal involvement is believed to motivate individuals to process a message centrally rather than peripherally (Petty & Cacioppo, 1986b). Consequently, the model implies that there is a positive relationship between personal involvement and cognitive processing. This claim has been supported in several studies (e.g., Harkness, DeBono, & Borgida, 1985). However, research results have also highlighted that, depending on the issue being addressed, it is possible that the positive relationship between personal involvement and cognitive processing will not be supported (see Johnson & Eagly, 1989; Slater & Rouner, 1996). As with personal involvement, research suggests that PMSV is related to cognitive processing. For instance, Palmgreen et al. (2002) found that there is a positive relationship between PMSV and cognitive processing. Even though both PMSV and personal involvement appear to be related to cognitive processing, research does not suggest that the two variables are correlated. Consequently, the divergent validity of the print PMSV scale

will be established if results from the proposed study show that no relation exists between PMSV and personal involvement.

A second variable that should not have a relationship with the PMSV of a message is perceived argument strength. According to Zhao, Strasser, Cappella, Lerman, and Fishbein (2011), “perceived argument strength refers to audience members’ perception of the quality, strength, and persuasiveness of an argument” (p. 50). According to the elaboration likelihood model, when a message is centrally processed, argument strength is important in determining if persuasion is successful. If the argument(s) associated with the message are strong, this is more likely to result in persuasion than if the argument(s) are weak. Consequently, argument strength is whether or not the statements associated with a message are viewed as logical, while PMSV is the ability of a message to elicit emotional, sensory, and arousal responses (Donohew et al, 1994, 1998). Therefore, based on the difference between these concepts, it can be assumed that PMSV is not related to argument strength.

A third variable that should not correlate with PMSV is communication apprehension. According to McCroskey (1977), communication apprehension is “an individual’s level of fear or anxiety associated with either a real or anticipated communication with another person or persons” (p. 78). McCroskey (1982) developed a communication apprehension scale that is comprised of four subscales. The subscales assess an individual’s apprehension towards communicating in groups, meetings, dyads, and in public speaking settings. It is expected that the composite communication apprehension scale will not correlate with the print PMSV scale. The communication apprehension scale and the print PMSV scales are not expected to correlate because the

fear a person experiences when interacting with others should not influence whether a print message elicits emotional, sensory, and arousal responses.

In sum, scales assessing personal involvement, argument strength, and communication apprehension will be used to establish the divergent validity of the PMSV scale for print messages, as these variables are not expected to correlate with PMSV. In addition to establishing the construct validity (i.e. convergent and divergent validity) of the PMSV scale for print messages, it is also important to establish the scale's predictive validity.

### **Predictive Validity**

Earlier it was stated that predictive validity is the ability of a scale to forecast a particular outcome. If a scale cannot predict an outcome it is theoretically expected to predict, then this raises questions about the validity of the scale and inhibits the use of the scale. Using two different samples, Noar et al. (2010) showed that the PMSV influences perceived message effectiveness (PME). PME refers to perceptions regarding whether or not a message has the potential to convince individuals not to engage in a negative health behavior. Additionally, after conducting multiple regression analyses to determine the impact of various variables on PME, Noar et al. found that PMSV was one of the strongest predictors of PME. Also, because only high sensation value messages were used in the Noar et al. study, it was expected that PMSV would be a better predictor of the PME for high than for low sensation seekers. However, the findings regarding low sensation seekers were not consistent with AMIE, as regression analyses showed that there was no significant difference between high and low sensation seekers in the ability of the PMSV to predict the PME. This finding is consistent with recent research, which

shows that low sensation seekers attend to both high and low sensation value messages (Stephenson & Palmgreen, 2001). It should be highlighted that the predictive relationship between PMSV and PME was established using the brief video PMSV scale instead of the 17-item scale. In order to establish the predictive validity of the print PMSV scale, the scale's ability to forecast PME will be evaluated.

Another outcome that PMSV is expected to predict is attitude towards advertisement/ad liking. Attitude towards ad can be defined as “a viewer's general liking or disliking of an advertisement” (Phelps & Thorson, 1991, p. 202). According to Shimp (1981), attitude towards ad is based both on a conscious evaluation of a message's content and also on a person's emotional evaluation of the ad. It is expected that PMSV will predict attitude towards ad because the characteristics included in a message can influence whether the ad is liked or disliked by an individual. For instance, high sensation seekers tend to like messages that are novel, dramatic, and emotional, while low sensation seekers tend to like ads that have limited levels of these characteristics (Donohew et al., 1998). Consequently, it is expected that whether a message is high or low in sensation value has the potential to influence if an individual likes or dislikes the ad. Thus far, it has been highlighted that the aim of this study is to create a reliable and valid PMSV scale for print messages, as the scales that currently exist only focus on video messages. However, the benefits of developing this scale have not been highlighted.

### **Benefits of the Perceived Message Sensation Value Scale for Print Messages**

Constructing the perceived message sensation value scale for print messages would contribute to the development and testing of the activation model of information

exposure. Additionally, the PMSV scale for print messages also has the potential to contribute to increased public health and overcome funding barriers associated with health campaigns.

### **Theoretical Contributions of the Perceived Message Sensation Value Scale for Print Messages**

Creating a PMSV scale for print messages is beneficial because it contributes to the testing and development of the AMIE. The premise of the activation model of information exposure states that the ability of a message to gain a person's attention is influenced by the biological trait sensation seeking and a message's sensation value (Donohew et al., 1998; Donohew, Palmgreen, & Duncan, 1980; Donohew et al., 1994). Scholars interested in testing this assumption currently only have the option of employing video messages. This limitation occurs because all measures created to act as a proxy for the theory's sensation value construct focus on video messages. As a result of this limitation, the applicability of the theory to other media forms is unknown. Possession of a new measure for assessing sensation value that focuses on print messages will provide scholars with an opportunity to test the applicability of the assumptions of the AMIE beyond video messages.

The PMSV scale for print messages will also contribute to the theory of information exposure by increasing its heuristic provocativeness. Heuristic provocativeness refers to the ability of a theory to spawn new research (Dubin, 1978; Littlejohn, 2002). It is also evidence of a good theory. The PMSV scale for print messages will increase the heuristic provocativeness of the activation model of information exposure because scholars interested in print media, who were previously

excluded from participating in the discourse concerning the theory, will gain an opportunity to employ the theory.

### **Contributions to the Improvement of Public Health**

The PMSV scale for print messages will also contribute to the improvement of public health. This scale is specifically being developed to assist in creating messages that are effective at convincing individuals not to engage in risky behaviors (e.g., smoking, drug use, alcohol consumption, sexual promiscuity, etc.) with the potential to affect their health. In the United States, there are millions of individuals who have been affected by diseases because of their decision to engage in certain risky behaviors (Go et al., 2013). For instance, smoking, drug use, and excessive alcohol consumption have been linked to different types of cardio-vascular disease. It is estimated that in 2009, 83,600,000 Americans suffered from one of these diseases. Therefore, creating tools such as the PMSV scale for print messages is necessary because they aid in developing effective persuasive messages and advertisements, which subsequently have the potential to reduce the number of individuals who face serious health issues.

### **Assistance in Overcoming Campaign Funding Barriers**

Creating a scale that allows message sensation value research to be extended to print messages is also necessary because not all organizations, governments, or individuals interested in persuading a target group to change its health behaviors or attitudes have access to the funds necessary to launch a televised campaign. For instance, when launching a televised campaign, interventionists have to pay for ample airtime to be successful, because the level of exposure has been linked to the success of televised campaigns (Hornik, 2002). In other words, the more often a PSA is aired, the more likely



it is that the target group will be exposed to the campaign and be susceptible to its effects. Additionally, interventionists, in most cases, need to pay for the services of a media company in order to develop a PSA, which is also expensive. For instance, it cost the Office of National Drug Control and Policy \$180 million in funding per year to sponsor a five-year television and radio anti-drug campaign (Palmgreen et al., 2007). This kind of spending is not feasible for most organizations. Consequently, researchers need to find more economical methods of persuading individuals to change their negative health behaviors (e.g., poster campaigns, magazine advertisements, billboards, webpage advertisements).

### **Research Questions and Hypotheses**

Previous assessments have shown that high sensation value messages tend to be novel, dramatic, and have the potential to elicit emotional arousal. This information was used in creating the video PMSV scale and will be used to create the print PMSV scale. However, in addition to creating the scale, there are several assessments that need to be conducted in order to develop a reliable and valid print PMSV scale. Consequently, the following questions will be explored.

**RQ1:** Can the same dimensions used to assess the PMSV of video messages be used to assess the PMSV of print messages?

**RQ2:** Are the composite print PMSV scale and its dimensions stable across print messages for different drugs?

**RQ3:** What are the reliability estimates for the composite print PMSV scale and its subscales?

**RQ4:** Are the print PMSV scale and its dimensions stable across sensation-seeking levels?

**RQ5:** Do the print PMSV scale and its dimensions vary across message sensation value?

A major goal of this study is to establish the construct validity (i.e., convergent and divergent validity) of the PMSV scale for print messages. Palmgreen et al. (2002) established the convergent validity of the PMSV scale for video messages by demonstrating that it has a positive relationship with measures of positive and negative affect, sensory processing, and cognitive processing, thereby highlighting that any measure of PMSV should correlate with these variables. On the other hand, research and logic suggests that PMSV is not related to personal involvement, argument strength, and communication apprehension. According to previous research (e.g., Stephenson & Palmgreen, 2001), both PMSV and personal involvement can influence the level of cognitive processing an individual experiences after viewing a message; however, these variables are not related. Additionally, it is believed that PMSV and argument strength are not related, as the argument strength scale assesses the logic of statements associated with a message, while a PMSV scale assesses the ability of a message to elicit emotional, sensory, and arousal responses in an individual. Also, it is expected that PMSV is not related to communication apprehension, as communication apprehension is a variable that focuses on the extent to which a person fears communicating with others (see McCroskey, 1977), while the PMSV scale focuses on assessing the extent to which a message can elicit emotional, sensory, and arousal responses. In order to establish the construct validity (i.e., convergent and divergent validity) of the PMSV scale for print

messages, the following hypotheses were formulated.

**H1a:** The PMSV scale for print messages and its dimensions will correlate positively with positive affect.

**H1b:** The PMSV scale for print messages and its dimensions will correlate positively with negative affect.

**H2:** The PMSV scale for print messages and its dimensions are positively related to cognitive processing.

**H3:** The PMSV scale for print messages and its dimensions are positively related to sensory processing.

**H4:** The PMSV scale for print messages and its dimensions are not related to personal involvement.

**H5:** The PMSV scale for print messages and its dimensions are not related to argument strength.

**H6:** The PMSV scale for print messages and its dimensions are not related to communication apprehension.

Additionally, another goal of this study is to establish the predictive validity of the print PMSV scale. Noar et al. (2010) conducted a study aimed at identifying message variables that are most likely to influence the perceived message effectiveness (PME) of campaign messages. The results of the study showed that PMSV is one of the key predictors of PME. It is also expected that PMSV will predict attitude towards ad/ad liking, as both previous research and the activation model of information exposure suggest (eg., Donohew et al., 1994; Palmgreen et al., 1991) that PMSV has the ability to influence whether a stimulus is preferred by an individual. Consequently, the following

hypotheses were formulated to establish the predictive validity of the print PMSV scale.

**H7:** The PMSV of a print message will impact PME.

**H8:** The PMSV of a print message will impact attitude towards ad/ad liking.

In addition, this study will attempt to determine if the PMSV scale for print messages will lead to findings consistent with the AMIE by examining the relationship among sensation seeking, perceived message sensation value, and perceived message effectiveness. Several studies have confirmed that high sensation seekers are more likely to view high rather than low sensation value messages as effective (e.g., Everett & Palmgreen, 1995; Palmgreen et al., 1991). However, in regard to low sensation seekers, some studies, consistent with the AMIE, have found that low sensation seekers are more likely to view low instead of high sensation value messages as effective, while other studies have shown that low sensation seekers tend to view both high and low sensation value messages as effective (e.g., Palmgreen & Everett, 1995). Consequently, the following hypotheses were formulated.

**H9:** High sensation seekers are more likely to perceive high sensation value print messages as more effective than low sensation value messages.

**H10:** Low sensation seekers are more likely to perceive low sensation value print messages as more effective than high sensation value messages.

## Chapter Three: Formative Research

This chapter outlines the method that was used to select the final four messages employed in testing the reliability and validity of the print perceived message sensation value scale. These four messages included one high sensation value anti-smoking message, one high sensation value anti-crystal meth message, one low sensation value anti-smoking message, and one low sensation value anti-crystal meth message. Both high and low sensation value messages were needed to test the validity and reliability of the print perceived message sensation value scale because this allowed for confirmation regarding whether or not the scale could successfully distinguish between high and low sensation value messages, which is the scale's main purpose. Additionally, two message types were employed (anti-smoking and anti-crystal meth), as this assisted in confirming whether or not the proposed scale structure remains the same (i.e., having the same scale items and dimensions) across messages addressing different types of drugs.

### Message Selection Procedures

#### Initial Message Pool

A pool of 85 anti-smoking and 28 anti-crystal meth print advertisements were collected from various anti-drug websites and government health campaigns (e.g., The Centers for Disease Control and Prevention *Tips from Former Smokers* Campaign; *Truth Campaign*; the Australian government 2012 anti-smoking graphic cigarette packaging; *Montana Meth Project*; and the Canadian government health warning cigarette packaging that became mandatory in 2012). The number of anti-smoking print messages exceeds the number of print anti-crystal meth messages because smoking is the focus of more

campaigns than crystal meth. Smoking tends to be the focus of more campaigns because it is a more prevalent issue than crystal meth use. For example, according to the United States Department of Health and Human Services (2013), in 2013 an estimated 55.8 million Americans ages 12 and older reported that they had smoked within the last month, while only 595, 000 individuals ages 12 and older reported using crystal meth.

After this pool of anti-smoking and anti-crystal meth print messages was compiled, a panel of researchers who have extensive experience with the message sensation value variable reviewed the messages. The purpose of this panel was to identify 20 messages (see Appendix C for description of messages): 10 messages that were believed to be high in sensation value (five anti-smoking and five anti-crystal meth) and 10 that were believed to be low in sensation value (five anti-smoking and five anti-crystal meth). The final decision regarding which four messages (one high sensation value anti-smoking message, one high sensation value anti-crystal meth message, one low sensation value anti-smoking message, and one low sensation value anti-crystal meth message) would be used to test the preliminary print PMSV scale was made by evaluating results from a sample from the target group that the scale is being created to benefit. Using members of the target group to select the final four messages assisted in ensuring that the target group viewed the selected high sensation value messages as possessing high levels of characteristics that have been known to influence the sensation value of messages (i.e., novelty, emotional arousal, and dramatic impact), and that they also viewed the selected low sensation value messages as lacking these characteristics. If the target group did not perceive a difference between the high and low sensation value messages, then unexpected results from the scale development study might be attributed to poor message

selection instead of issues with the actual scale items. This would be problematic, as the goal of this scale development study is to test the preliminary print PMSV scale's items' ability to distinguish between high and low sensation value messages; poor message selection would hinder this objective. The following section describes the sample used to select the final four messages used to test the reliability and validity of the print perceived message sensation value scale. Additionally, the following section provides an overview of the recruitment procedure used to obtain a sample.

### **Participants and Recruitment**

A total of 84 students from a variety of undergraduate courses at the University of Kentucky participated in the message selection process. Of the participants, 47.6% (n = 40) were male while 52.4% (n = 44) were female. Additionally, the sample consisted of 73.8% (n = 62) White, 10.7% (n = 9) African American, 4.8 % (n = 4) Hispanic, 3.6% (n = 3) Asian, 2.4% (n = 2) Pacific Islander, and 4.8% (n = 4) other. Also, 48.9% (n = 41) of the sample were high sensation seekers and 51.2% (n = 43) were low sensation seekers. High and low sensation seekers were determined by a median split (Mdn = 3.38), which is consistent with previous perceived message sensation value research (e.g., Palmgreen et al., 2002; Stephenson & Palmgreen, 2001). In order to participate in the study, participants were required to be between the ages of 18-26.

This age group was targeted for the message selection process because it is the same age group that will be used to test the preliminary print PMSV scale. This age group will be used to test the print PMSV scale because it is an age range where there is still a distinct difference between high and low sensation seekers. Members of both groups are needed to assist with the testing of the print PMSV scale's stability and the

activation model of information exposure. It is suggested that a person's need for sensation progressively increases during childhood, peaks during adolescence, and then declines (Zuckerman, 1979). However, there is some research suggesting that a person's need for sensation peaks during early adulthood (see Zuckerman, 1994). These research findings support the notion that selecting the age range 18-26 is appropriate if the goal is to identify both high and low sensation seekers.

Participants were recruited using two methods. The first method was through SONA, the Department of Communication's online participant recruitment system. This message selection study was posted on the website with other studies whose creators were also seeking participants. The survey was posted under the name *Designing Health Messages for the Future*. On the website, students were provided with a description of the study, location of the study, its eligibility requirement, and the researcher's contact information. If students were interested in the study and met the eligibility requirements, they were invited to click on a link, which directed them to a list of times that the study was being conducted. Participants were instructed to sign up for the time slot that best fit their schedule. The main reason individuals recruited through SONA participated in this study was to fulfill the Department of Communication's research credit requirement. All students enrolled in lower division communication courses are required to complete one research credit in partial fulfillment of their course requirements. If students did not want to participate in the study or did not meet the age requirement, they could make the decision to participate in another study to fulfill their SONA requirement, or they could complete the alternative assignment offered by the Department of Communication for students who did not wish to be study participants.



The second recruitment method involved contacting course instructors whose students were not required to complete the Department of Communication research requirement and asking them to offer their students the opportunity to participate in the study for extra credit. If instructors agreed, they were sent an email to distribute to their students with the times the study would be conducted. Students who did not wish to participate in the study, students who were not available during the available time slots, and students who did not meet the age requirement, were offered an alternative assignment by their instructor.

### **Procedures**

A total of 10 message evaluation sessions were conducted from March 31, 2014 to April 4, 2014. Message evaluation sessions were held in a theater setting and lasted for approximately 40 minutes. Upon entering the study's location, participants were invited to have a seat and were given a consent form (see Appendix D). At the start of each session, the consent form was reviewed and consent was received. Following receipt of participants' consent, the rules associated with the study were reviewed via a PowerPoint presentation. Participants were informed that they would be shown a color message on the screen and would be asked to evaluate the extent to which they agreed or disagreed that the message had a particular characteristic on a paper-based survey. They were also encouraged not to skip ahead in the survey or to change their answers after the message was no longer located on the screen. This was to ensure that their initial responses to the messages were obtained.

After receiving the instructions, participants were given the paper-based survey (see Appendix E) to record their responses to each message. Each page of the survey

contained a black and white image of one of the 20 print messages selected by the perceived message sensation value experts. Additionally, below each image there were questions aimed at assessing the extent to which the characteristics known to influence the perceived message sensation value variable were reflected in the message. Black and white images of each message were included on the survey to assist participants in identifying the survey page that was associated with each message displayed on the projector screen. Prior to beginning the survey, participants were told to base their evaluation on the color image provided on the screen and not the black and white image reproduced on their survey. At the end of the survey, individuals were asked to complete the sensation seeking scale and demographic information. In order to reduce order effects, five of the 10 groups were first exposed to anti-smoking messages while the other five were first exposed to anti-crystal meth messages. After each session, surveys were collected and participants were thanked for their participation. The following section contains a detailed overview of the measures that comprised the survey given to participants.

## **Measures**

**Demographics.** Participants were asked to report their age, gender, class rank, and race.

**Short video perceived message sensation value scale.** The short video PMSV scale and items from this scale have previously been employed to assess the sensation value of video messages (e.g., Noar, 2010; Palmgreen et al., 2007). The scale is comprised of six items with a Likert scale response format (Strongly disagree 1 2 3 4 5 Strongly agree). The short video PMSV scale does not have items that make it specific to

only video messages, but consists of items that can be used to inquire about the degree to which a particular variable is reflected in various types of media. Additionally, the short video PMSV scale consists of items that represent the essence of variables that are believed to influence the sensation value of a message (P. Palmgreen, Personal Communication, March 2, 2014). As a result, it was used to determine the extent to which members of the target group agreed or disagreed that a particular print message reflects the variables that are known to influence the sensation value of a message.

Development of the short video PMSV scale involved using the two items that loaded the strongest on each dimension (novelty, emotional arousal, and dramatic impact) of the 17-item video PMSV scale (see Palmgreen et al., 2002). Therefore, in order to determine the extent to which the novelty dimension of the PMSV variable was reflected in each message identified by the panel of PMSV experts, participants were asked the degree to which they agreed or disagreed that “This message is novel” and that “This message is unique.” On the other hand, in order to assess the extent to which the emotional arousal dimension of the PMSV was reflected in each message, participants were asked the degree to which they agreed or disagreed that “This message is emotional” and that “This message is exciting.” Finally, the presence of the dramatic impact dimension of each message was assessed by asking participants the extent to which they agreed or disagreed that “This message is dramatic” and that “This message is intense.”

The short video PMSV scale showed a strong correlation with the 17-item video PMSV scale: correlation between the scales ranged from .94-.96 (P. Palmgreen, Personal Communication, March 2, 2014). When used to assess the 10 anti-smoking messages, the

short video PMSV scale yielded an acceptable average Cronbach's alpha ( $\alpha = .77$ ). For the 10 anti-crystal meth messages the scale also yielded an acceptable average Cronbach's alpha ( $\alpha = .77$ ).

**Sensation-seeking scale.** Participants' sensation seeking levels were evaluated using Hoyle, Stephenson, Palmgreen, Lorch, and Donohew's (2002) 8-item brief sensation-seeking scale. Using a 5-point Likert response format, individuals were asked to identify the extent to which they agreed with a particular statement. For instance, participants were shown statements such as, "I like wild parties," or "I would like to explore strange places." As previously mentioned, individuals were classified as low or high sensation seekers based on a median split. In several studies (see Helme et al., 2007; Noar et al., 2010), this scale has proven successful in discriminating between high and low sensation seekers. Additionally, Hoyle et al.'s brief sensation-seeking scale has yielded Cronbach's alphas of .71 and greater (e.g., Noar et al., 2010; Palmgreen et al., 2007; Zimmerman et al., 2007). This sensation-seeking scale has also demonstrated good construct validity in previous studies (e.g., Hoyle et al., 2002). For the message selection process, Hoyle's brief sensation-seeking scale yielded an acceptable Cronbach's alpha ( $\alpha = .76$ ).

### **Analyses**

In order to determine which messages were highest and lowest in sensation value, the mean scores of all messages on the short video perceived message sensation value scale were calculated. Additionally, for the messages with the highest means, the percentage of individuals who strongly agreed or agreed that the messages reflected characteristics associated with high sensation value messages were examined. This

allowed an investigation into whether the messages with the highest means were perceived by a large percentage of the sample as having high levels of all the characteristics (novelty, emotional arousal, and dramatic impact) necessary to be classified as high in sensation value. For messages with the lowest means, the percentage of individuals who believed that the messages did not reflect the novelty, emotional arousal, and dramatic impact dimensions of PMSV were examined. This examination helped ensure that the messages with low means were perceived by a large percentage of the sample as having limited levels of all of the characteristics (novelty, emotional arousal, and dramatic impact) they are expected to lack in order to be classified as low in sensation value. After the final four messages were selected, paired sample t-tests were conducted to determine if there is a significant difference between high and low sensation value messages.

## **Results**

As mentioned earlier, five anti-smoking messages were selected by a panel of perceived message sensation value experts as reflecting the characteristics associated with high sensation value messages (see Appendix C for description of messages). However, only one high sensation value anti-smoking message was needed to test the preliminary print PMSV scale. In order to decide which of the five messages best reflects the variables (novelty, emotional arousal, and dramatic impact) that influence the sensation value of a message, a group of 84 individuals were consulted and asked to complete a scale assessing the messages.

Results from this message selection study revealed that of these five messages, high sensation value anti-smoking message one ( $M = 3.85$ ,  $SD = .56$ ) and high sensation

value anti-smoking message two ( $M = 3.85$ ,  $SD = .62$ ) had the highest mean (see Table 3.1). Additionally, high sensation value messages one and two had comparable results regarding the percentage of individuals who strongly agreed or agreed that the messages reflect the emotional arousal and dramatic impact dimensions of the perceived message sensation value variable (see Table 3.2). However, the novelty dimension of the perceived message sensation value variable was believed to be more prevalent in high sensation value message one than in high sensation value message two. For instance, each message was assessed for the novelty dimension of the perceived message sensation value variable by asking participants if the message is novel and if it is unique. High sensation value anti-smoking message one had 17.8% more individuals who strongly agreed or agreed that it was more novel than high sensation value anti-smoking message two. Additionally, high sensation value anti-smoking message one had 26.2% more participants who strongly agreed or agreed that the message was unique than high sensation value message two. As a result, because message one appeared to be viewed as more novel than high sensation value message two, it was selected for testing the reliability and validity of the initial print PMSV scale. Low sensation value anti-smoking message five had the lowest mean ( $M = 1.59$ ,  $SD = .55$ ) among the five low sensation value messages selected by the PMSV experts (see Table 3.1). Additionally, most participants strongly disagreed or disagreed that the message reflects the novelty, emotional arousal, and dramatic impact dimensions of the perceived message sensation value variable (see Table 3.3).

Similar to anti-smoking messages, the panel of perceived message sensation value experts selected five anti-crystal meth messages they believed were representative of high

sensation value messages. Results showed that high sensation value anti-crystal meth message four had the highest mean ( $M = 3.96$ ,  $SD = .63$ ) of the five high sensation value messages (see Table 3.1). Consequently, high sensation value anti-crystal meth message four had a large percentage of individuals who strongly agreed or agreed that the message reflects each of the characteristics (novelty, emotional arousal, and dramatic impact) associated with high sensation value messages (see Table 3.2). Low sensation value anti-crystal meth message four had the lowest mean ( $M = 1.67$ ,  $SD = .62$ ) of the five low sensation value messages selected by the panel of PMSV experts (see Table 3.1). Also, low sensation value anti-crystal meth message four had a large percentage of participants who strongly disagreed and disagreed that the message reflects the novelty, emotional arousal, and dramatic impact dimensions of the perceived message sensation value variable (see Table 3.3).

The paired sample t-tests revealed that there were significant differences between the high and low sensation value messages selected. Results of the paired sample t-tests suggested that high sensation value anti-smoking message one ( $M = 3.85$ ,  $SD = .56$ ) was significantly different from low sensation value anti-smoking message five ( $M = 1.59$ ,  $SD = .55$ ),  $t(83) = 23.62$ ,  $p < .001$ . There was also a significant difference between high sensation value anti-crystal meth message four ( $M = 3.96$ ,  $SD = .63$ ) and low sensation value anti-crystal meth message four ( $M = 1.67$ ,  $SD = .62$ ),  $t(83) = 20.30$ ,  $p < .001$ .

## **Discussion**

The formative research process outlined in this chapter was used to determine the final four messages (one high sensation value anti-smoking message, one high sensation value anti-crystal meth message, one low sensation value anti-smoking message, and one

low sensation value anti-crystal meth message) that would be used to test the validity and reliability of the preliminary print perceived message sensation value scale. Both high and low sensation value messages are needed to test the reliability and validity of the preliminary perceived message sensation value scale because the purpose of the scale is to distinguish between high and low sensation value messages. Therefore, identifying and using both high and low sensation value print messages will assist in determining if the scale can successfully distinguish between high and low sensation value messages. Additionally, using both anti-smoking and anti-crystal meth messages is necessary as this aids in confirming whether the identified scale structure remains the same regardless of the drug being addressed in the message.

These final four messages were employed because both the PMSV experts and the target group believed that the high sensation value anti-smoking and anti-crystal meth messages selected to test the print PMSV scale reflected the characteristics (novelty, emotional arousal, and dramatic impact) associated with high sensation value messages. Additionally, both the PMSV experts and the target group believed that the selected low sensation value anti-smoking and anti-crystal meth messages reflect limited levels of novelty, emotional arousal, and dramatic impact, which is expected of a low sensation value message. Also, based on the short video PSMV scale, it was expected that the high sensation value messages would be perceived as significantly different from the low sensation value messages. This was supported, as there was a statistically significant difference between the high sensation value anti-smoking messages and the low sensation value anti-smoking messages. This was also true for the high and low sensation value anti-crystal meth messages. Consequently, these results further support the idea that the



message selection process was successful at distinguishing high from low sensation value messages. The current chapter provided an overview of the message selection process; the next chapter provides an overview of the methods employed to test the preliminary perceived message sensation value scale.

Table 3.1: Means and Standard Deviations of High Sensation Value (HSV) and Low Sensation Value (LSV) Anti-smoking and Anti-crystal Meth Messages.

Message	<i>M</i>	<i>SD</i>
HSV Smoking 1	3.85	.56
HSV Smoking 2	3.85	.62
HSV Smoking 3	3.81	.60
HSV Smoking 4	3.81	.62
HSV Smoking 5	3.84	.65
LSV Smoking 1	2.61	.54
LSV Smoking 2	2.73	.65
LSV Smoking 3	2.83	.68
LSV Smoking 4	1.64	.63
LSV Smoking 5	1.59	.55
HSV Crystal meth 1	3.64	.61
HSV Crystal meth 2	3.86	.58
HSV Crystal meth 3	3.62	.65
HSV Crystal meth 4	3.96	.63
HSV Crystal meth 5	3.84	.49
LSV Crystal meth 1	2.14	.59
LSV Crystal meth 2	3.04	.83
LSV Crystal meth 3	2.01	.65
LSV Crystal meth 4	1.67	.62
LSV Crystal meth 5	3.46	.56

Table 3.2: The Percentage of Participants who Strongly Agreed and Agreed that the High Sensation Value Messages Selected by the Perceived Message Sensation Value Experts Reflect High Levels of the Characteristics that are Known to Influence a Message's Sensation Value.

Message	Novelty		Emotional Arousal		Dramatic Impact	
	Novelty	Unique	Emotional	Exciting	Dramatic	Intense
Smoking 1	65.4	88.1	94.1	23.9	89.3	92.9
Smoking 2	47.6	61.9	95.3	21.4	92.9	96.4
Smoking 3	17.9	85.7	67.9	32.1	91.6	96.5
Smoking 4	47.6	77.4	63.1	34.5	95.3	97.6
Smoking 5	57.1	79.8	65.5	28.6	94.1	96.4
Crystal meth 1	46.4	65.5	88.1	22.6	88.1	84.5
Crystal meth 2	51.2	79.7	86.9	25.0	92.8	91.6
Crystal meth 3	41.6	69.0	63.1	21.5	88.1	89.3
Crystal meth 4	53.6	82.1	96.5	36.9	94.0	92.8
Crystal meth 5	54.1	83.3	92.8	22.6	97.6	85.7

Table 3.3: The Percentage of Participants who Strongly Disagreed or Disagreed that the Low Sensation Value Messages Selected by the Perceived Message Sensation Value Experts Reflect the Characteristics that are Known to Influence the Sensation Value of a Message

Message	Novelty		Emotional Arousal		Dramatic Impact	
	Novelty	Unique	Emotional	Exciting	Dramatic	Intense
Smoking 1	20.3	52.3	58.4	78.6	62.0	64.3
Smoking 2	32.2	44.0	60.8	63.1	45.3	58.3
Smoking 3	26.0	32.2	47.6	72.6	42.9	61.9
Smoking 4	64.3	91.7	96.4	96.4	97.7	97.6
Smoking 5	96.4	92.8	96.4	96.4	95.3	97.6
Crystal meth 1	47.6	65.4	82.1	95.3	78.6	82.2
Crystal meth 2	28.6	40.5	22.7	76.2	31.0	41.7
Crystal meth 3	44.1	97.8	84.5	95.2	90.4	82.2
Crystal meth 4	58.3	89.3	90.5	95.2	92.8	90.4
Crystal meth 5	19.1	16.7	3.6	67.9	17.9	14.3

## Chapter Four: Method for Scale Development Study

The scale development process consisted of two studies. Two studies were conducted because when creating a scale it is ideal to collect data from two different populations to determine if the scale is stable across different populations (Cudeck & Browne, 1983). One sample is usually used to conduct an exploratory factor analysis (EFA) and a second, newly collected sample from a different population is used to conduct a confirmatory factor analysis (CFA). However, due to the difficulty of obtaining a sample from two different populations, two samples were collected from the same population: one was used for the EFA (study one) and one for the CFA (study two). Using two samples from the same population is viewed as an acceptable alternative to using two samples from different populations (see Devellis, 2012). It was difficult to obtain samples from two different populations, as the primary researcher only had access to college students who participated in one of the two studies either for research credit or for extra credit. Obtaining data from a population that is not college students and who are not required to participate in the study would have been difficult specifically because individuals usually do not want to invest the time in completing a survey that will not result in significant personal gain (Fowler, 2009).

Although only college students were employed for both studies, these subjects were an appropriate choice because college students are within the age range where the sensation-seeking trait tends to be most active in high sensation seekers. As previously mentioned, a child's need for sensation increases from childhood, peaks during adolescence, and then declines (Zuckerman, 1979). Some studies (see Zuckerman, 1994),

however, suggest that the sensation-seeking trait peaks during the early twenties.

Therefore, college students were targeted in an attempt to have a sample where high sensation seekers are clearly distinguishable from low sensation seekers, which is necessary for determining the validity of the PMSV scale for print messages.

Additionally, another reason two studies were conducted is because this allowed for testing regarding whether or not the scale's structure remained the same (i.e., same items and dimensions) across different drug messages (anti-smoking versus anti-crystal meth). Consequently, the anti-smoking messages selected during the formative phase of this project were used in study one to collect data for the EFA, while the anti-crystal meth messages were used for the second study to collect data for the CFA. Therefore, if the scale structure identified through EFA using the anti-smoking data is the same as the scale structure identified through CFA using the anti-crystal meth data, then the scale is stable across drug messages. However, if the structure identified through the EFA using anti-smoking data is not the same as the scale structure identified through CFA using anti-crystal meth data then the scale is not stable across drug messages.

Overall, the purpose of this chapter is to provide an overview of the participants, recruitment methods, data collection, and measures used for both studies associated with the PMSV scale development process.

## **Study One**

### **Participants**

A total of 397 students enrolled in various undergraduate courses at the University of Kentucky participated in study one. The sample also consisted of 51.1% (n = 202) males and 48.9% (n=193) females. In order to participate in the study, participants were

required to be between the ages of 18 and 26; as a result, the median age of the sample was 20. Additionally, the sample was comprised of 75.9% (n = 299) Whites, 11.7% (n = 46) African American, 4.1% (n = 16) Hispanic, 3.8% (n = 15) Asians, .8% (n = 3) Pacific Islander, and 3.8% (n = 15) other. Overall, the study was comprised of 52% (n = 195) low sensation seekers and 48% (n = 180) high sensation seekers. Sensation levels were determined by a median split (Mdn = 3.38; see Palmgreen et al., 2002). Also, 53.2% (n = 210) of the sample stated that they have smoked in the past. Of the individuals who reported smoking in the past, 48.6% (n = 102) reported smoking during the past 30 days.

Participants for this study were recruited using two methods. The first method was through SONA, the Department of Communication's online recruitment system. The website contains a list of studies for which participants are being sought. This study was listed under the name *Increasing Knowledge about Anti-Smoking Messages*. The main reason students participated in this study, or any of the studies listed on the recruitment website, was to fulfill the Department of Communication's research credit requirement. All students enrolled in lower division communication courses are required to complete one research credit in partial fulfillment of their course requirements. One research credit is earned for each study in which a student participates. Additionally, students who did not want to participate in this study, did not qualify for the study, or decided to exit the survey early had the option to participate in another study or complete an alternative assignment to fulfill their SONA requirement. Individuals who did not want to participate in this study but failed to complete another study or complete the alternative SONA assignment received a 5% grade reduction. The second recruitment method involved contacting instructors and asking them to offer their students the opportunity to participate in this

study to earn extra credit. It is important to highlight that only instructors in charge of courses that were not required to complete the Department of Communication research requirement were contacted. If students did not wish to participate in the study or did not meet the minimum age requirement of 18 – 26, they had the option to receive extra credit by completing an alternative assignment.

## **Messages**

From a pool of 85 messages, two messages were selected for this study: one high and one low sensation value anti-smoking message (see Appendix C for description of messages: high sensation value anti-smoking message one and low sensation value anti-smoking message five). These two messages were selected based on the suggestions of a panel of PMSV experts and a sample of 84 individuals with a similar demographic composition as participants targeted for this study. Both the experts and the target group viewed the selected high sensation value anti-smoking message as reflecting the characteristics (novelty, emotional arousal, and dramatic impact) that are indicative of a message that is high in sensation value. Additionally, both groups also believed that the low sensation value anti-smoking message was not novel, emotionally-arousing, and dramatic, which is usually the case with low sensation value messages. Also, after the final two messages were selected, a manipulation check revealed that there is a statistically significant difference between the selected high ( $M = 3.85$ ,  $SD = .56$ ) and low ( $M = 1.59$ ,  $SD = .55$ ) sensation value anti-smoking message,  $t(83) = 23.63$ ,  $p < .001$ . See *Chapter Three: Formative Research*, for a detailed overview of the message selection process.

## **Study Two**

### **Participants**

A total of 284 participants completed this study. Of this number, 49.5% (n = 139) were males and 50.5% (n = 142) were females. For this study, participants were required to be between the ages of 18 and 26. This resulted in a mean age of 20. Additionally, the sample was comprised of 79.9 % (n = 227) White, 7.7% (n = 22) African American, 2.1% (n = 6) Hispanic, 5.3% (n = 15) Asian, .4% (n = 1) Native American, .4% (n = 1) Pacific Islander, and 4.2% (n = 12) other. Overall, the sample included 52.2% (n = 144) low sensation seekers and 47.8% (n = 132) high sensation seekers. Sensation seeking levels were determined by a median split (Mdn = 3.5; see Palmgreen et al., 2002). Also, 2.1% (n = 6) reported using crystal meth. Of this number, 33.3% (n = 2) reported using crystal meth in the last 30 days. Participants for this study were recruited using the same recruitment methods used for study one.

### **Messages**

For the second study, two messages were selected from a pool of 28 messages: one high sensation value anti-crystal meth message and one low sensation value anti-crystal meth message (see Appendix C for description of messages: high sensation value anti-crystal meth message four and low sensation value anti-crystal meth message four). Similar to the anti-smoking messages, these two messages were selected by a panel of PMSV experts and a sample of 84 participants with similar demographics as the target group for this study. Both the PMSV experts and the target group believed that the selected high sensation value anti-crystal meth message fits the suggested profile of a high sensation value message, which involves being novel, emotionally-arousing, and



dramatic. Both groups also believed that the selected low sensation value anti-crystal meth message fits the profile of a low sensation value message because it is not likely to be described as novel, emotionally-arousing, and dramatic.

A manipulation check also suggests that the selected high sensation value anti-crystal meth ( $M = 3.96$ ,  $SD = .63$ ) and low sensation value anti-crystal meth ( $M = 1.67$ ,  $SD = .62$ ) messages are significantly different in sensation value,  $t(83) = 20.30$   $p < .001$ . For an extensive description of the message selection process, see *Chapter Three: Formative Research*.

### **Administration Process and Measures for Study One and Study Two**

#### **Administration Process for Study One and Two**

**Online recruitment system.** Both studies were posted on the Department of Communication online recruitment system. There was approximately five minutes between the launch of each survey. The anti-smoking survey was listed on the participant recruitment website under the name *Increasing Knowledge about Anti-Smoking Messages*, while the crystal meth survey was launched under the name of *Increasing Knowledge About Anti-Crystal Meth Messages*. For each study, a description of the study, eligibility requirements, and the researcher's contact information was provided. The eligibility requirements informed potential participants that they were only allowed to participate in one of the two studies, not both. Participants were also informed that they were not allowed to participate in either of the two studies if they had previously participated in the study titled *Designing Health Messages for the Future* (i.e., the message selection study). The online recruitment program was also programmed to prohibit participants from violating these two restrictions. Additionally, participants were

informed that they had to be between the ages of 18 and 26 in order to participate in the study. Also, they were told that if they had previously completed the study, they should consider studies posted by other researchers.

If participants decided to enroll in the study *Increasing Knowledge about Anti-Smoking Messages*, they were provided with a link. After clicking on the link, participants were directed to a consent form (see Appendix F). At the end of the consent form participants were asked if they would like to continue the study. If a participant made the decision not to continue with the study, they were directed to a webpage that thanked them for considering the study. Participants who made the decision at this point not to complete the study still had the option of completing an alternative assignment in order to receive credit. Participants who made the decision to continue with the study were directed to the survey (see Appendix G).

The first page of the survey provided instructions on completing the print perceived sensation value scale. On the following page, participants were randomly exposed either to a high or low sensation value anti-smoking message and asked to evaluate the message with the print perceived message sensation value scale that was located below the message. After evaluating the message with the print perceived message sensation value scale, participants were asked to complete a cognitive processing scale followed by the sensory processing scale. Participants were not shown the message while completing the cognitive and sensory processing scales, as both scales assess participants' recollection of the message. Also, participants were asked to complete the cognitive and sensory processing scales early in the survey, because the message being evaluated was shown several times throughout the survey. Therefore,

having participants complete the cognitive and sensory processing scale early in the survey helped to ensure that recall was based on the initial exposure and not repeated exposure. Following their completion of the cognitive and sensory processing scales, individuals were exposed to the message for a second time as they completed the positive affect and negative affect scale (PANAS), and were continuously exposed to the message as they completed the perceived message effectiveness scale, followed by the attitude towards the ad scale. After completing these scales, participants' exposure to the message ended because the remaining survey items were unrelated to the message. The remaining survey items were completed in the following order: personal involvement scale, sensation seeking scale, communication apprehension scale, and demographic questions. These scales and questions were placed at the end of the survey because it is likely that individuals will get tired towards the end; therefore, it is best to place scales and questions that require little cognitive work last.

If participants made the decision to enroll in the study *Increasing Knowledge about Anti-Crystal Meth Messages*, they had the same experience as individuals who enrolled in the study *Increasing Knowledge About Anti-Smoking Messages*. However, they were randomly exposed to either a high or a low sensation value anti-crystal meth message (see Appendix H for survey).

**Participants recruited through instructors.** If instructors whose students were not required to complete the Department of Communication research requirement agreed to have their students participate in this research project, they were sent an email and asked to distribute the email to their class. The email contained a description of both studies, the eligibility requirement, the researcher's contact information, and links to both

surveys. Eligibility requirements informed participants that they were only allowed to complete one, not both, surveys. Additionally, participants were told that they had to be between the ages of 18-26. Also, they were informed that they should not take either of the surveys if they had previously completed one of the surveys for another class or if they had participated in the study *Designing Health Messages for the Future*. Students who did not wish to participate in the study, did not meet the age requirement, who had enrolled in the *Designing Health Messages for the Future* study, or had previously taken one of the surveys were offered an alternative assignment by their instructor.

Participants who qualified for the study were invited to click on one of the survey links included in their instructor's email (either the link associated with the study *Increasing Knowledge about Anti-Smoking Messages* or the link associated with the study *Increasing Knowledge About Anti-Crystal Meth Messages*). After clicking on the link, they had a similar consent process (see Appendix F) and survey experience (see Appendix G and Appendix H for surveys) as individuals who were recruited through the Department of Communication online recruitment system.

### **Measures Used for Study One and Study Two**

**Demographics.** Participants were asked to report their age, gender, sex, and class rank. They were also asked about their drug use. For example, have you ever \_\_\_\_\_ (smoked or used crystal meth)? Demographic questions and drug use data were collected to aid in the description of the sample.

**Personal involvement.** Donohew et al. (1980) found that personal involvement also mediates the relationship between sensation seeking and the ability of a message to gain a person's attention. Drug involvement was assessed using Zaichkowsky's (1994)

10-item semantic differential personal involvement inventory. In a study aimed at establishing the scale's reliability, Zaichkowsky found that the personal involvement inventory yielded strong Cronbach's alphas ranging from .91 to .96. Although Zaichkowsky originally developed the scale to assess advertisement and product involvement for marketing related purposes, for this study the scale was used to determine a person's level of involvement in behavior (i.e., smoking and crystal meth use) addressed in the print messages. The personal involvement scale yielded strong alphas for both the smoking ( $\alpha = .93$ ) and the crystal meth studies ( $\alpha = .92$ ).

**Sensation-seeking.** Participants' sensation-seeking levels were evaluated using Hoyle et al.'s (2002) 8-item brief sensation-seeking scale, the same scale that was employed during the message selection process. The brief sensation-seeking scale yielded an acceptable Cronbach's alpha of .79 for both the smoking and crystal meth dataset.

**Perceived message sensation value.** The preliminary composite PMSV scale for print (see Appendix A) messages consists of 34 items and three subscales: novelty, dramatic impact, and emotional arousal. The novelty subscale contains 11 items, the dramatic impact scale contains 13 items, and the emotional arousal scale contains 10 items. A three-dimensional scale is being developed, as previous research (see Palmgreen et al., 2002) suggests that the PMSV of a message is mainly influenced by its levels of novelty, dramatic nature, and emotional arousal capabilities. The reliabilities of the final composite print perceived message sensation value scale and its subscales will be reported in the results section, as the main purpose to this study is to test the reliability and validity of the perceived message sensation scale and its subscales.

**Positive affect and negative affect.** Affect was measured using the positive affect and negative affect scale (PANAS) scale developed by Watson et al., (1988). The scale consists of two subscales: positive affect and negative affect. In the initial assessment of the scale, researchers investigated if each subscale was reliable across different time frames and groups (i.e., at the moment, today, past few days, past few weeks, a year, and in general). For this study, the scale was used to obtain an at the moment measure of affect. Individuals were asked the extent to which they felt each emotion (1 = Not at all to 5 = Very much). Previously, the positive affect scale yielded Cronbach's alphas ranging from .86 to .90, and the negative affect scale has yielded Cronbach's alphas ranging from .84 to .87. The construct validity of the scale has also been supported by several studies (e.g., Crawford & Henry, 2004). Reliabilities associated with the positive affect scale were strong for both the smoking ( $\alpha = .90$ ) and crystal meth ( $\alpha = .91$ ) studies. Also, the negative affect scale yielded a Cronbach's alpha of .92 for both the smoking and crystal meth studies.

**Perceived message effectiveness.** Perceived message effectiveness was assessed using modified items from several different scales (e.g., Dillard, Weber, & Vail 2007; Dillard & Ye 2008; Fishbein, Hall-Jamieson, Zimmerman, von Haeften, & Nabi, 2002; Yzer, Vohs, Luciana, Cuthbert, & MacDonald, 2011), as there is no commonly agreed upon method for measuring this construct. The PME scale for this study consisted of 11 items: (1) This advertisement got my attention. (2) This advertisement is believable. (3) This advertisement would make me less likely to \_\_\_\_\_ (smoke or use crystal meth). (4) This advertisement is memorable. (5) This advertisement is effective. (6) This advertisement would make people my age less likely to \_\_\_\_\_ (smoke or use

crystal meth). (7) This advertisement is truthful. (8) This advertisement would help prevent my friends from \_\_\_\_\_ (e.g., smoking or using crystal meth). (9) This advertisement was convincing. (10) This advertisement would help convince me not to \_\_\_\_\_ (smoke or use crystal meth). (11) This advertisement made me feel confident with how best to deal with \_\_\_\_\_ (smoking or crystal meth use) in the real world. A 5-point Likert response format ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) was employed for the PME scale. Because the PME scale was a composite of various scales, a factor analysis was conducted. Even though all items loaded on one factor for the smoking dataset, they loaded on two factors for the crystal meth dataset. For the crystal meth dataset, the two problematic items were “The advertisement is believable,” which double loaded, and “This advertisement is truthful,” which loaded only on factor two. Both items were eliminated from the scale, and nine instead of 11 items were used to assess perceived message effectiveness. The PME scale displayed strong reliabilities for both the smoking ( $\alpha = .97$ ) and crystal meth dataset ( $\alpha = .96$ ).

**Attitude towards the advertisement.** In order to determine an individual’s attitude towards an ad, Biehal, Stephens, and Curio’s (1992) 5-item 7-point semantic differential attitude towards the ad scale was employed. Items associated with the scale are good/bad, like/dislike, interesting/boring, creative/uncreative, and informative/uninformative. In a study conducted by Biehal et al., this scale was used to evaluate participants’ attitudes towards several advertisements, and it yielded an average Cronbach’s alpha of .85. The construct validity of the scale was also established in the same study. In addition to the items that comprise Biehal et al.’s scale, two other items

were added: pleasant/unpleasant and favorable/unfavorable. These items were taken from Mackenzie & Lutz's (1989) 3-item 7-point semantic differential attitude towards ad scale, which is a widely used scale in advertising and marketing research. The third item from the Mackenzie and Lutz scale is already a part of Biehal et al.'s scale. The Mackenzie and Lutz scale has yielded acceptable to strong (e.g., .85 and .93) Cronbach's alphas (see Bhutada, Cook, & Perri III, 2009; Lafferty, Goldsmith, Newell, 2002). The construct validity of the Mackenzie and Lutz attitude towards the ad scale has also been established in several studies (e.g., Bhutada et al., 2009). Because the attitude towards the ad scale is a combination of two scales, the composite scale was factor analyzed. For both the smoking and crystal meth datasets, the factor analyses revealed that the attitude towards the ad scale consisted of two factors. The second factor consisted of two items: pleasant/unpleasant and favorable/unfavorable. However, for both datasets one of the items (i.e. pleasant/unpleasant) double loaded; as a result, both items from the second factor were deleted. Consequently, the new 5-item attitude towards the ad scale yielded strong reliabilities of .95 for both the smoking and crystal meth study.

**Perceived argument strength.** In order to assess perceived argument quality, Zhao et al.'s (2011) 9-item 5-point Likert argument strength scale was employed. Even though the scale is described as a Likert scale, one of the nine items was created using a Likert-type response format. Zhao et al. created the argument strength scale to reduce the need to assess argument strength through thought listing. In order to test the reliability and validity of this scale, Zhao et al. conducted three studies. In the first study, 10 arguments were assessed and the scale yielded a mean Cronbach's alpha of .85. For the second study, 99 arguments were assessed and the scale yielded a mean Cronbach's alpha



of .88. For the third study, eight arguments were assessed and the scale yielded a mean Cronbach's alpha of .92. The construct validity of the argument strength scale was also established in Zhao and colleagues' study. While the argument strength scale showed strong internal consistency for the smoking study, two of the scale items affected the scale's internal consistency for the crystal meth study. These two items were "The statement(s) in the advertisement put thoughts in my mind that increased my desire to use crystal meth," and "Overall, how much do you agree or disagree with the statements in the advertisement?". A factor analysis revealed that, for the crystal meth study, these two items were also loading on a second factor, which is problematic as the scale was developed as a one-factor scale. As a result, the two items from the second factor were deleted, which lead to an argument strength scale comprised of seven items. This 7-item argument strength scale yielded a Cronbach's alpha of .95 for the smoking study and a Cronbach's alpha of .93 for the crystal meth study.

**Communication apprehension.** Communication apprehension was assessed using McCroskey's (1982) 24-item personal report of communication apprehension (PRCA-24) scale. McCroskey's composite PRCA-24 scale has yielded acceptable to strong Cronbach's alphas such as .83 and .97 (see McCroskey, 1982; Russ, 2013; Malachowski & Martin, 2011). The construct, predictive, and content validity of this measure were confirmed in several studies (see, Beatty, 1987; Levine & McCroskey, 1990; McCroskey, 1982; McCroskey, Beatty, Kearney & Plax, 1985). PRCA-24 yielded strong Cronbach's alphas for both the smoking ( $\alpha = .94$ ) and crystal meth ( $\alpha = .95$ ) study.

**Cognitive processing.** Cognitive processing was assessed using a modification of Stephenson and Palmgreen's (2001) cognitive processing scale. A five-point Likert scale

(Strongly disagree 1 2 3 4 5 Strongly agree) was employed. Stephenson and Palmgreen (2001) developed this scale using items from two previous studies (see Andrews, Durvasula, Akhter, 1990; Chaudhuri & Buck, 1995). The cognitive processing scale consists of four items: “Overall, the ad made me” (1) “think about arguments for not \_\_\_\_\_ (smoking or using crystal meth),” (2) “focus more on my thoughts than my emotions,” (3) “think about the consequences of \_\_\_\_\_ (smoking or crystal meth use) shown in the print advertisement,” and (4) “think about how \_\_\_\_\_ (smoking or using crystal meth) might affect my life.” The blanks were filled with the name of the substance being addressed in the message. In the Stephenson and Palmgreen (2001) study, the cognitive processing scale yielded a Cronbach’s alpha of .84. For the two studies associated with this research project, the cognitive processing scale yielded acceptable alphas: smoking ( $\alpha = .83$ ) and crystal meth (.79).

**Sensory processing.** The sensory processing scale was developed based on previous research (see Childers & Houston, 1984; Leong, Ang, & Than, 1996; Stephenson & Palmgreen, 2001). The scale has a 7-point Likert-type response format (Not at all 1 2 3 4 5 6 7 Very much). Participants were asked to respond to 7 items: “Overall, how much did you pay attention to the advertisement’s a) images b) design c) color d) quality e) size f) text size g) text color?”. Since this scale was created specifically for this study, a factor analysis was conducted, which revealed a one-factor structure. For both the smoking and crystal meth study, the sensory processing scale yielded an acceptable Cronbach’s alpha ( $\alpha = .88$ ).

## Statistical Analyses

Data from study one, *Increasing Knowledge About Anti-Smoking Messages*, was used for an exploratory factor analysis (EFA), which was conducted using SPSS 21. The factor analysis aided in answering RQ1, which inquired if the same three-dimensional structure (i.e., novelty, emotional arousal, and dramatic impact) used to assess the sensation value of video messages can be used to assess the sensation value of print messages. On the other hand, data from study two, *Increasing Knowledge about Anti-Crystal Meth Messages*, was used for a confirmatory factor analysis (CFA) to determine if the scale structure identified through EFA remained stable through another study using different messages (RQ2). The confirmatory factor analysis was conducted using AMOS 21 software. For both study one and two, the Cronbach's coefficient alpha of the composite Print PMSV scale and its subscales were calculated (RQ3).

Additionally, data from study one and two were combined and used to conduct a 2 x 2 ANOVA aimed at determining if the composite scale and its dimensions are stable across sensation-seeking levels (RQ4) and to examine if the composite print PMSV scale and its subscales could successfully distinguish between high and low sensation value messages (RQ5). Also, after combining data from studies one and two, the data were used to investigate H1-H6, which inquired whether the print PMSV scale correlated with measures it was expected to correlate with (i.e., convergent validity) and did not correlate with measures with which it should not have a relationship (i.e., divergent validity). Additionally, after combining the data from studies one and two, the data were employed to conduct multiple regression analyses aimed at establishing the predictive validity of the print PMSV scale (H7 and H8). The combined dataset, which consisted of data from

studies one and two, was also used to conduct a 2 X 2 ANOVA aimed at verifying if the activation model of information exposure is applicable to print messages (H9 and H10).

## Chapter Five: Results

This chapter provides a report of the results from various statistical analyses that were conducted to answer the research questions and hypotheses associated with this project. First this chapter contains the results of an EFA that was conducted using data from study one, *Increasing Knowledge About Anti-Smoking Messages*. Study one was conducted in an attempt to answer research question one (RQ1), which inquires about dimensions of the print perceived message sensation value scale. After reporting the results of study one, the results of the CFA that was conducted using data from study two, *Increasing Knowledge about Anti-Crystal Meth Messages*, were reported. The results of study two provided an answer for whether or not the composite print PMSV scale and its subscales would remain stable/consistent if used to assess a different set of messages than the ones used in study one (RQ2). Third, this chapter contains findings regarding the internal consistency of the print PMSV scale for both the smoking and crystal meth study (RQ3).

After reporting the internal consistency of the print PMSV scale for each study (smoking and crystal meth), the data from both studies were combined. The combined data were used to determine if the print PMSV scale is stable across sensation-seeking levels (RQ4) and if the scale is able to clearly distinguish between high and low sensation value messages (RQ5). Also, the combined data were used to determine if the print PMSV scale has construct and predictive validity (H1-H8). Lastly, the combined data were employed to test the activation model of information exposure (H9-H10). Results

from the analyses that were conducted using the combined data are also reported in this chapter.

### **Results for Study One: *Increasing Knowledge about Anti-smoking Messages***

The goal of study one was to inquire whether the dimensions used to assess the sensation value of video messages could be used to assess the sensation value of print messages (RQ1). This question was answered by conducting an exploratory factor analysis. However, prior to conducting this analysis certain requirements had to be met.

#### **Exploratory Factor Analysis Requirements**

According to scale development scholars, EFAs should be conducted with a minimum sample of 200 participants (Devellis, 2012). A sample of 200 is believed to yield enough statistical power to prevent committing a type II error. Study one, the smoking study, had a total of 397 participants and, as a result, met the sample size requirement for conducting an EFA. Also, scale development scholars suggest a minimum EFA item-to-participant ratio, which ranges from 1:4 to 1:10 (Gorsuch, 1983; Rummel, 1970; Worthington & Whittaker, 2006). For the smoking study, there was an item-to-participant ratio of 1:11. Additionally, factors were extracted using the maximum likelihood method of extraction, which requires that the data associated with all 34 items of the preliminary print PMSV scale be normally distributed and without severe problems (i.e.,  $|\text{skew}| > 2$  and  $\text{kurtosis} > 7$ ; West, Finch, & Curran, 1995). Data that are not normally distributed can lead to misleading results. For study one, the data associated with the 34 items of the preliminary print PMSV scale had a skewness range of -.14 to .72, while kurtosis ranged from -1.62 to -.60. After checking to ensure the

requirements for conducting an EFA were met, the analysis was conducted. The next section provides an overview of the EFA process and the results obtained.

### **Exploratory Factor Analysis**

An exploratory factor analysis using the maximum likelihood model with the Promax method of rotation and Kaiser Normalization was conducted to separate the 34 items of the preliminary print PMSV scale into three factors. After the factors were extracted, the final scale items were determined by using a standard factor loading criteria, which suggested that in order for an item to be retained, it should load at least .60 on the primary factor and possess no secondary loading of .40 or above (see McCroskey & Young, 1979). This resulted in a print perceived message sensation value scale comprised of 12 items (see Table 5.1) and three factors (see Table 5.2 for factor loadings).

Factor one, *emotional arousal*, consisted of five items; factor two, *novelty*, consisted of four items; and factor three, *dramatic impact*, consisted of three items. Also, the three factors explained 85.74% of the shared variance. Of the total variance explained, *emotional arousal* was shown to account for 72.12 % of the shared variance, *novelty* for 9.43%, and *dramatic impact* for 4.19%. See Table 5.3 for factor correlation. Additionally, according to Fabrigar, Wegener, MacCallum, and Strahan (1999), when maximum likelihood is used as the method of extraction, goodness of fit statistics such as RMSEA should be used to determine if the model is a good fit for the data. An RMSEA of  $p \leq .05$  indicates that the model is a good fit (Browne & Cudeck, 1992). The RMSEA for the 12-item three-factor model was .05.

The results of study one suggest that the print PMSV scale has 12 items and three factors (emotional arousal, novelty, and dramatic impact). To confirm that the structure of the print PMSV scale identified in study one is replicable, a second study using different messages was conducted.

### **Results for Study Two: *Increasing Knowledge about Anti-crystal Meth Messages***

The purpose of study two was to determine if the same 12-item three-factor scale structure identified in study one would reoccur if a second study was conducted using different messages (RQ2). Therefore, for study two, instead of using anti-smoking messages like study one, anti-crystal meth messages were employed. In order to fulfill the goals of study two, a confirmatory factor analysis was conducted. However, before the confirmatory factor analysis was performed, certain requirements had to be fulfilled.

### **Confirmatory Factor Analysis Requirements**

According to scale developers, CFAs should be conducted using a sample of 200 participants or more (see Devellis, 2012; Kline, 2005; Worthington & Whittaker, 2006). As with EFAs, a sample of this size yields enough statistical power to reduce the likelihood of committing a type II error. This requirement was met, as study two had a sample size of 284 participants. Additionally, because maximum likelihood extraction was used for the confirmatory factor analysis, the data from study two was also assessed for normality to ensure there were no serious deviations from it (i.e.,  $|\text{skew}| > 2$  and  $\text{kurtosis} > 7$ ). The results of the assessment showed that skewness of the data associated with scale items ranged from -.18 to .55, while kurtosis ranged from -1.63 to -1.10. Due to the minimum requirements for conducting a confirmatory factor analysis being met,



the analysis was conducted. In the next section, the confirmatory factor analysis process and results are provided.

### **Confirmatory Factor Analysis**

A confirmatory factor analysis using AMOS software and maximum likelihood estimation was used to confirm the 12-item three-factor structure of the print PMSV scale (see Figure 5.1 for the measurement model that was tested). The data are considered a good fit for the theoretical model if there is a non-significant chi square, relative chi-square ( $\chi^2/df$ ) ratio below 3, an RMSEA value less than or equal to .05, and NFI, TLI, and CFI greater than or equal to .95 (see Bentler, 1990; Browne & Cudeck, 1992; Hu & Bentler, 1998). The fit statistics for the measurement model being tested were:  $\chi^2 = (51, N = 284) = 171.59, p = .001$ ;  $\chi^2/df \text{ Ratio} = 3.36$ ; RMSEA = .09; NFI = .96; TLI = .96; and CFI = .97. See Figure 5.1 for CFA factor loadings (range .74 -.95).

Based on the results of the CFA, the proposed model is not a great fit; however, it can be considered an acceptable fit. The model is considered an acceptable fit for a number of reasons. First, even though the chi-square is significant, this is usually the case with large sample sizes like the one tested here (Fabrigar et al., 1999). Additionally, the proposed model is acceptable because Browne and Cudeck (1992) suggest that models with an RMSEA less than .10 can be employed. Also, another reason the model can be considered an acceptable fit is that the NFI, TLI, and CFI indicate a good fit. Lastly, the model can be considered an acceptable fit because the relative chi-square of the proposed measurement model is between 3 and 5, which some researchers (see Schumacker & Lomax, 2004) believe is satisfactory. After the confirmatory factor analysis was conducted, the reliabilities for the print PMSV scale and its dimensions were calculated.

## **Reliability**

In order to answer research question three (RQ3), which inquired about the reliability estimates of the 12-item composite perceived message sensation value scale and its subscale, the Cronbach's coefficient alpha for each scale was calculated. For study one, the smoking study, the composite PMSV scale and subscales yielded strong Cronbach's alphas. The reliability of the composite print PMSV scale ( $M = 3.68$ ,  $SD = 1.86$ ) was .97, the emotional arousal subscale ( $M = 3.88$ ,  $SD = 2.08$ ) was .95, the novelty subscale ( $M = 3.24$ ,  $SD = 1.79$ ) was .91, and the dramatic impact subscale ( $M = 3.90$ ,  $SD = 2.16$ ) was .95. For study two, the crystal meth study, the composite PMSV scale and its subscales also yielded strong alphas. The reliability of the composite print perceived message sensation value scale ( $M = 3.96$ ,  $SD = 1.90$ ) was .97, the emotional arousal subscale ( $M = 3.93$ ,  $SD = 2.10$ ) was .96, the novelty subscale ( $M = 3.85$ ,  $SD = 1.78$ ) was .91, and the dramatic impact subscale ( $M = 4.14$ ,  $SD = 2.28$ ) was .97.

### **Testing the Print Perceived Message Sensation Value Scale's Stability, Ability to Detect Differences, Construct Validity, and Predictive Validity**

After developing the print perceived message sensation value scale, the next goals were to test the scale's stability across sensation-seeking levels, ability to capture the difference between high and low sensation value messages, construct validity, and predictive validity. In order to achieve these goals, data from study one and study two were combined. This allowed for the scale and its dimensions to be tested using two high and two low sensation value messages, thereby contributing to a more robust analysis (e.g., Lane, Harrington, Donohew, & Zimmerman, 2006). It is acceptable to combine the data from both studies because there are only two minor, but acceptable, differences

between the structures of the two surveys associated with each study. The first difference was that for study one, participants were exposed to anti-smoking messages while for study two participants were exposed to anti-crystal meth messages. Additionally, the second difference was that some questions required that the behavior being addressed in the messages (e.g., smoking or crystal meth use) be inserted into its sentence structure. For example, “Overall this ad made me think about how \_\_\_\_\_ (smoking or crystal meth use) might affect my life.” Also, both datasets could be combined because the high sensation value anti-smoking message from study one and the high sensation value anti-crystal meth message from study two had close means on the composite print perceived message sensation value scale and its subscales (see Table 5.4). This was also true for the low sensation value anti-smoking and anti-crystal meth messages, except on the novelty dimension. Next, the results associated with research questions four and five will be reported.

#### **Testing the Print Perceived Message Sensation Value Scale’s Stability Across Sensation-Seeking Levels and Ability to Capture Variation Across Message Sensation Value**

Research question four (RQ4) inquired about the print perceived message sensation value scale’s and subscales’ stability across sensation-seeking levels. If the print perceived message sensation value scale and its subscales are stable across sensation-seeking levels, no statistically significant difference is expected between high and low sensation seekers’ perception of the messages. No significant difference is expected because sensation-seeking levels (i.e., difference between individuals) should not influence whether a message is viewed as high or low in sensation value, it should

only influence message preference. On the other hand, research question five (RQ5) inquired about the ability of the scale and its dimensions to distinguish between high and low sensation value messages. It is expected that a good measure of perceived message sensation value or its dimensions should capture differences between high and low sensation value messages.

A series of 2 (low versus high sensation seekers) X 2 (high versus low sensation value messages) ANOVAs on the composite print perceived message sensation value scale and its subscales (novelty, emotional arousal, and dramatic impact) provided support for the expectations associated with research questions four and five. As anticipated, there were not significant main effects for need for sensation on the composite print perceived message sensation value scale:  $F(1, 624) = 1, p = .32$ ; emotional arousal subscale:  $F(1, 637) = .92, p = .34$ ; novelty subscale:  $F(1, 639) = 3.32, p = .07$ ; and the dramatic impact subscale:  $F(1, 640) = .10, p = .76$ . Additionally, as expected there were significant main effects for message sensation value (high vs. low) on the perceived message sensation value scale:  $F(1, 624) = 1,448.80, p < .001, \eta_p^2 = .70$ ; emotional arousal subscale:  $F(1, 637) = 1,220.25, p < .001, \eta_p^2 = .66$ ; novelty subscale:  $F(1, 639) = 467.07, p < .001, \eta_p^2 = .42$ ; and the dramatic impact subscale:  $F(1, 640) = 1,425.28, p < .001, \eta_p^2 = .69$ . The results also suggest high sensation value messages were viewed as higher in perceived message sensation value, emotional arousal, novelty, and dramatic impact than low sensation value messages (see Table 5.5). In sum, research questions four and five were answered; print PMSV did not differ across sensation seeking levels but did differentiate between high and low sensation value

messages. Next, findings regarding the construct validity of the print PMSV scale and its dimensions will be reported.

### **Construct Validity**

This study contained several hypotheses aimed at establishing the construct validity of the composite print perceived message sensation value scale and its subscales. Construct validity was determined by testing the scales' convergent and divergent validity. Consequently, some hypotheses addressed the print perceived message sensation value scale's and its subscales' convergent validity, while others focused on their divergent validity. To determine the relationship of the print PMSV scale and its subscales to other measures, Pearson's product-moment correlation coefficients were calculated.

### **Convergent Validity**

**Affect.** H1a, which focuses on the convergent validity of the print PMSV scale, suggests that a positive linear relationship exists between the print PMSV scale and positive affect. This assumption was supported, as there was a significant and moderate positive correlation between the print PMSV scale and positive affect ( $r = .60, p < .01$ ). H1a also suggests that a positive linear relationship exists between the print perceived message sensation value subscales (emotional arousal, novelty, and dramatic impact) and positive affect. This assumption was supported, as all three subscales had a moderate positive relationship with positive affect (see Table 5.6).

Additionally, the print PMSV scale was expected to have a positive linear relationship with negative affect (H1b). This expectation was supported, as there was a moderate positive relationship ( $r = .55, p < .01$ ) between the PMSV scale and the negative

affect. H1b also suggests that a positive linear relationship exists between the print PMSV subscales and negative affect. This assumption was supported, as all three subscales had a significant and moderate positive relationship with negative affect (see Table 5.6).

**Cognitive processing.** Hypothesis two (H2) was also aimed at establishing the convergent validity of the print perceived message sensation value scale and its subscales. According to hypothesis two, the composite print perceived message sensation value scale has a positive linear relationship with cognitive processing. This assumption was supported, as results showed that a significant and moderately strong positive relationship exists between the two variables ( $r = .74, p < .01$ ). Hypothesis two also suggested that a positive linear relationship exists between the print PMSV subscales and cognitive processing. This assumption was supported, as all the subscales of the print PMSV scale (emotional arousal, novelty, and dramatic impact) had a moderate or moderately strong positive relationship with cognitive processing (see Table 5.6).

**Sensory processing.** The convergent validity of the print perceived message sensation value scale was also the focus of hypothesis three (H3). This hypothesis stated that a positive linear relationship exists between the print perceived message sensation value scale and sensory processing. This assumption was supported, as the print PMSV scale and sensory processing were weakly and positively correlated ( $r = .38, p < .01$ ). Hypothesis three also stated that a positive linear relationship exists between the subscales (emotional arousal, novelty, and dramatic impact) of the print PMSV scale and sensory processing. This assumption was supported, as a weak positive relationship exists

between the subscales of the print PMSV scale and sensory processing (see Table 5.6 for results).

### **Divergent Validity**

**Personal involvement.** Hypothesis four (H4) suggests that a linear relationship does not exist between the composite print PMSV scale and personal involvement. This hypothesis aimed to establish the divergent validity of the print PMSV scale and was supported, as the correlation between the print PMSV scale and personal involvement was not significant ( $r = .01$ ,  $p > .05$ ). Hypothesis four also stated that the subscales of the print PMSV scale do not have a linear relationship with personal involvement. Results highlighted that a significant relationship does not exist between subscales of the print PMSV scale and personal involvement (see Table 5.6).

**Argument strength.** Another hypothesis that focused on establishing the divergent validity of the PMSV scale was hypothesis five (H5). According to this hypothesis, no relationship exists between PMSV and argument strength. This hypothesis was not supported, as a significant moderately strong positive relationship was found between PMSV and argument strength ( $r = .79$ ,  $p < .01$ ). Additionally, hypothesis five also suggests that no relationship exists between subscales of the PMSV scale and argument strength. This assumption was not supported, as all the subscales of the print PMSV scale correlated positively and had a moderate or moderately strong relationship with argument strength (see Table 5.6).

**Communication apprehension.** Hypothesis six (H6) also aimed to establish the divergent validity of the print PMSV scale. This hypothesis stated that a linear relationship does not exist between the print PMSV scale and communication

apprehension. This assumption was supported, as the correlation between the two variables was not significant ( $r = .02$ ,  $p > .05$ ). Hypothesis six (H6) also suggested that the subscales of the print PMSV scale do not have a linear relationship with communication apprehension. This assumption was supported, as all the subscales did not correlate significantly with communication apprehension (see Table 5.6).

In this section, results associated with establishing the construct validity of the print PMSV scale and its subscales were reported. In the next section, the results regarding the print PMSV scale's and subscales' predictive validity will be provided.

### **Predictive Validity**

Multiple regression analyses were conducted to determine if the print PMSV scale has predictive validity. However, before conducting the multiple regression analyses, preliminary investigation revealed that the assumptions necessary for conducting multiple regression analyses were met. Specifically, the assumptions of normality ( $|\text{skew}| < 2$  and  $\text{kurtosis} < 7$ ), multicollinearity (variance inflation factor values that were below 10; Bowerman & O'Connell, 1990), independence of errors (Durbin-Watson; see Fields, 2009), linearity, and heteroscedasticity were not violated. Linearity and heteroscedasticity were assessed by looking at histograms and scatter diagrams of residuals versus predicted residuals.

### **Predicting Perceived Message Effectiveness**

In order to establish the predictive validity of the print PMSV scale, hypothesis seven (H7) suggested that the print PMSV has an impact on PME. The regression analyses included other variables believed to have an impact on perceived message effectiveness: age, positive affect, negative affect, cognitive processing, sensory



processing, personal involvement, and sensation seeking. Communication apprehension was not included in the regression analysis because a person's fear of communicating with others is not expected to influence whether or not a message is perceived as effective. According to Fields (2009), regression analyses usually involve the use of predictor variables that are theoretically or rationally linked to the outcome variable. The overall regression model was significant:  $F(9, 469) = 363.72, p < .001$ , and responsible for 87% of the variance in perceived message effectiveness. Additionally, the regression analysis revealed that argument strength had the strongest impact on perceived message effectiveness, followed by perceived message sensation value (see Table 5.7). Also, when controlling for the other predictors, perceived message sensation value was responsible for an additional 3% of the variance explained in perceived message effectiveness.

### **Predicting Attitude Towards the Ad/Ad Liking**

Hypothesis eight (H8) also aimed at establishing the predictive validity of the print perceived message sensation value scale, suggests that print PMSV has an impact on attitude towards the ad. This regression analysis also included other variables believed to have an impact on attitude towards the ad: age, negative affect, positive affect, cognitive processing, sensory processing, personal involvement, and sensation seeking. Communication apprehension was also not included in this regression analysis for the reasons mentioned above. Overall, the regression model was significant:  $F(9, 487) = 205.56, p < .001$ , and explained 79% of the variance in attitude towards the ad. Additionally, the model showed that print PMSV had the strongest impact on attitude towards the ad/ad liking (see Table 5.8). After controlling for the other predictor

variables, print PMSV was responsible for an additional 8% of the variance in attitude towards the ad/ad liking.

After conducting analyses to identify if PMSV can be used to predict a particular outcome, analyses were conducted to test the activation model of information exposure. The activation model of information exposure was tested because it is the theory that outlines perceived message sensation value's relationship with other variables.

### **Testing the Activation Model of Information Exposure**

The activation model of information exposure was also tested using the print PMSV scale. According to the model, high sensation seekers are more likely to view high sensation value messages as more effective (H9), while low sensation seekers are more likely to view low sensation value messages as more effective (H10). In order to test this interaction effect, a 2 (high and low need for sensation) X 2 (high and low sensation value message) ANOVA on perceived message effectiveness was conducted. No main effect was found for need for sensation:  $F(1, 620) = .87, p = .35$ , but there was a main effect for message sensation value:  $F(1, 620) = 725.95, p < .001, \eta_p^2 = .54$ . High sensation value messages ( $M = 3.78$ ) were perceived as more effective than low sensation value messages ( $M = 2.12$ ). The interaction effect was not significant:  $F(1, 620) = 2.94, p = .09$ . Both high and low sensation seekers viewed high sensation value messages as more effective than low sensation value messages (see Table 5.9). Therefore, hypothesis nine was supported, but hypothesis 10 was not supported.

### **Summary of Results**

Chapter four provided a summary of the results from study one (smoking study) and study two (crystal meth study). The data from study one were used to conduct a

factor analysis to identify the dimensions of the print PMSV scale. The factor analysis revealed a 12-item three-factor (emotional arousal, novelty, and dramatic impact) print perceived message sensation value scale. In addition, the data from study two were used to conduct a confirmatory factor analysis, which supported the 12-item three-factor structure of the print perceived message sensation value scale. Additionally, the results of both the exploratory and confirmatory factor analyses suggest that the print PMSV scale's structure remained the same across different drug messages. The reliability estimates of the print PMSV scale and its subscales for both study one and study two were also reported. Findings suggest that the print perceived message sensation value scale and its subscales have strong internal consistency. After the PMSV scale structure was identified and its reliability established, the data from study one and study two were combined. The combined data were used to test the scale's stability across sensation-seeking levels, its ability to distinguish between high and low sensation value messages, its construct validity, and its predictive validity. The combined data were also used to test the model of information exposure. Results suggest that the scale and its dimensions are stable across sensation-seeking levels and can successfully distinguish between high and low sensation value messages. Additionally, the results from this research project support the convergent validity of the composite print PMSV scale and its subscales. Also, the findings suggest that the composite print PMSV scale and its subscales have divergent validity. Further analysis also revealed that the composite print PMSV scale has an impact on perceived message effectiveness and attitude towards the ad/ad liking. Lastly, results provided partial support for the model of information exposure. In the next chapter the reported results will be discussed.

Table 5.1: Perceived Message Sensation Value Scale for Print Messages

1. Familiar	1	2	3	4	5	6	7	Unfamiliar
2. Normal	1	2	3	4	5	6	7	Strange
3. Typical	1	2	3	4	5	6	7	Atypical
4. Expected	1	2	3	4	5	6	7	Unexpected
5. Undramatic	1	2	3	4	5	6	7	Dramatic
6. Not Graphic	1	2	3	4	5	6	7	Graphic
7. Not Intense	1	2	3	4	5	6	7	Intense
8. Emotional	1	2	3	4	5	6	7	Unemotional
9. Involving	1	2	3	4	5	6	7	Uninvolving
10. Powerful Impact	1	2	3	4	5	6	7	Weak Impact
11. Strong Visuals	1	2	3	4	5	6	7	Weak Visuals
12. Stimulating	1	2	3	4	5	6	7	Not Stimulating

*Note:* Items 8, 9, 10, 11, and 12 are reverse coded.

Table 5.2, Exploratory Factor Analysis Pattern Matrix for the Perceived Message Sensation Value Scale for Print Messages

PMSV Scale Items	Factor		
	Emotional Arousal	Novelty	Dramatic Impact
Familiar: Unfamiliar	.005	<b>.796</b>	-.060
Normal: Strange	-.033	<b>.744</b>	.190
Typical: Atypical	.098	<b>.839</b>	-.021
Expected: Unexpected	.044	<b>.847</b>	.026
Undramatic: Dramatic	.224	.027	<b>.742</b>
Not Graphic: Graphic	.189	.036	<b>.707</b>
Not Intense: Intense	.236	.046	<b>.716</b>
Emotional: Unemotional	<b>.723</b>	.030	.193
Involving: Uninvolving	<b>.812</b>	.085	-.112
Powerful Impact: Weak Impact	<b>.961</b>	.000	.021
Strong Visuals: Weak Visuals	<b>.797</b>	-.054	.209
Stimulating: Not Stimulating	<b>.792</b>	.103	.040

*Note.* Factor loadings > .60 are in boldface. PMSV = Perceived message sensation value

Table 5.3: Factor Correlation Matrix for the Perceived Message Sensation Value Scale for Print Messages

	Emotional Arousal	Novelty	Dramatic Impact
Emotional Arousal	1.00	.70	.82
Novelty		1.00	.70
Dramatic Impact			1.00

Table 5.4: High and Low Sensation Value Anti-smoking and Anti-crystal Meth Messages Means on the Perceived Message Sensation Value Scale and its Dimensions.

Message	Scale											
	PMSV			Emotional Arousal			Novelty			Dramatic Impact		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
HSV Smoking	193	5.24	0.92	196	5.53	1.10	199	4.48	1.37	195	5.68	1.07
HSV Crystal meth	142	5.44	0.95	145	5.57	1.13	145	4.86	1.37	146	5.94	1.15
LSV Smoking	189	2.10	1.07	193	2.20	1.37	194	1.97	1.16	197	2.14	1.37
LSV Crystal meth	131	2.34	1.23	136	2.18	1.34	135	2.77	1.51	134	2.18	1.43

Table 5.5: High and Low Sensation Value Messages' Means on the Perceived Message Sensation Value Scale for Print Messages and its Dimensions

Message	Scale											
	PMSV			Emotional Arousal			Novelty			Dramatic Impact		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
HSV	320	5.33	0.93	324	5.57	1.10	327	4.63	1.38	326	5.81	1.10
LSV	308	2.19	1.14	317	2.18	1.34	316	2.30	1.38	318	2.12	1.36

*Note.* HSV = High Sensation Value; LSV= Low Sensation Value

Table 5.6: Correlations of the Perceived Message Sensation Value Scale and its Subscales with Measures of Affect, Processing, Message Variables, and Individual Differences

	PMSV scale	Emotional Arousal	Novelty	Dramatic Impact
Negative Affect	.55**	.53**	.44**	.52**
Positive Affect	.60**	.60**	.44**	.59**
Cognitive Processing	.74**	.73**	.55**	.74**
Sensory Processing	.38**	.37**	.28**	.38**
Personal Involvement	.01	.02	.01	-.02
Argument Strength	.79**	.77**	.63**	.77**
CA	.02	.02	.01	.04

*Note.* PMSV = Perceived message sensation value; CA = Communication Apprehension.  
 \*\* $p < .01$ , two-tailed.

Table 5.7: Multiple Regression Analysis Predicting Perceived Message Effectiveness

Scales	Perceived Message Effectiveness			
	<i>t</i>	B	<i>SE</i>	Std. $\beta$
Age	-.30	.01	.01	-.01
Negative Affect	.37	.01	.04	.01
Positive Affect	2.42	.10	.04	.07*
Cognitive Processing	5.04	.17	.03	.15**
Sensory Processing	2.35	.04	.02	.05*
Print PMSV	10.34	.18	.02	.31**
Argument Strength	14.85	.45	.03	.46**
Sensation Seeking	.33	.01	.03	.01
Personal Involvement	-1.86	-.03	.02	-.03

$F(9, 469) = 363.72$ ,  $SEM = .40$ , adjusted  $R^2 = 87\%$

*Note.* PMSV = Perceived message sensation value

\* $p < .05$ . \*\* $p < .001$



Table 5. 8: Multiple Regression Analysis predicting Attitude Towards the Ad

Scales	Attitude Towards the Ad			
	<i>t</i>	B	<i>SE</i>	std. $\beta$
Age	-1.84	.05	.03	-.04
Negative Affect	-2.01	-.16	.08	-.07
Positive Affect	4.07	.37	.09	.15**
Cognitive Processing	2.25	.17	.07	.08*
Sensory Processing	.98	.04	.04	.02
Print PMSV	13.5	.54	.04	.51**
Argument Strength	6.95	.28	.07	.28**
Sensation Seeking	-1.11	-.07	.06	-.02
Personal Involvement	1.43	.05	.03	.03

F (9,487) = 205.56, SEM = .92, adjusted  $R^2$  = 79%

Note. PMSV = Perceived message sensation value

\* $p < .05$ . \*\* $p < .001$

Table 5.9: Means of High and Low Sensation Seekers' Perceptions of Message Effectiveness

Sensation-Seeking	HSV messages	LSV Messages
HSS	3.86	2.10
LSS	3.70	2.15

Note. HSS = High sensation seekers; LSS = Low sensation seekers; HSV = High sensation value messages; LSV = Low sensation value messages.

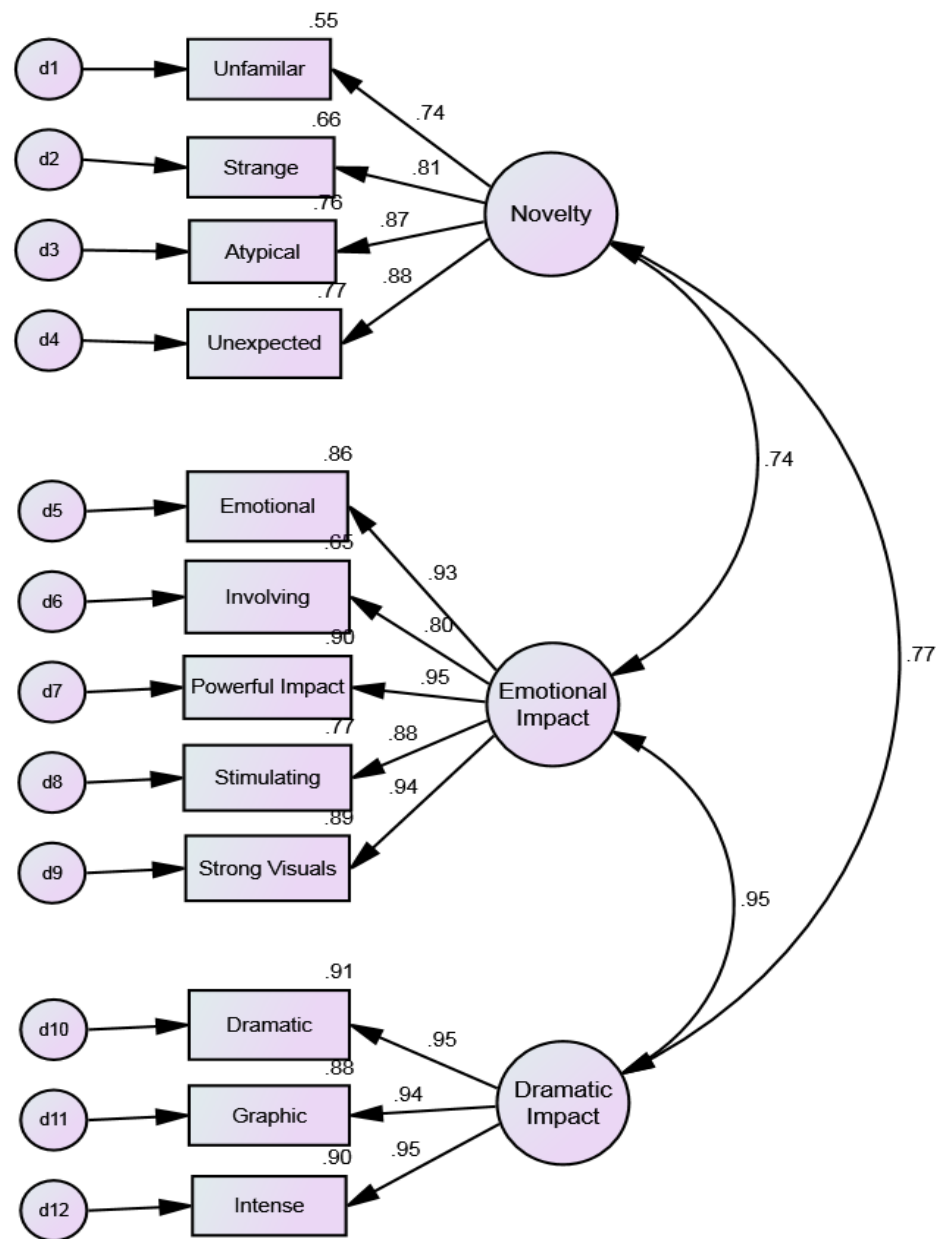


Figure 5.1. Hypothesized three-factor solution for confirmatory factor analysis using anti-crystal meth message dataset

## Chapter Six: Discussion

The overarching purpose of this study was to develop a reliable and valid measure for assessing the perceived sensation value of a message. The process of achieving this goal involved determining if the same dimensions (emotional arousal, novelty, and dramatic impact) used to assess the perceived sensation value of video messages could be used to assess the perceived sensation value of print messages (RQ1). Also, analyses were conducted to determine if the new print PMSV scale is stable across messages about different drugs (RQ2). Additionally, the reliabilities of the new print PMSV scale and its subscales were also calculated (RQ3). Furthermore, an investigation was conducted to verify if the new print PMSV scale was stable across sensation-seeking levels (RQ4) and could successfully distinguish between high and low sensation value messages (RQ5). The construct and predictive validity of the new print PMSV scale was also investigated (H1-H8). Lastly, the applicability of the activation model of information exposure to print messages was tested (H9 and H10). The purpose of this chapter is to discuss the results of the aforementioned research questions and hypotheses. This chapter also discusses the limitations of this research project and possible future areas of investigation.

### **RQ1: Dimensions of the Perceived Message Sensation Value Scale for Print Messages**

Research question one (RQ1) inquired if the dimensions of the video PMSV scale can be used to assess the perceived sensation value of print messages. An exploratory factor analysis (EFA) using data from study one, *Increasing Knowledge*

*About Anti-Smoking Messages*, and a confirmatory factor analysis (CFA) using data from study two, *Increasing Knowledge about Anti-Crystal Meth Messages*, highlighted that the same dimensions/factors used to evaluate the perceived sensation value of video messages can effectively be used to evaluate the perceived sensation value of print messages. However, the EFA and CFA also revealed that there are some similarities and differences between the items associated with the dimensions of the video PMSV scale and those associated with the dimensions of the print PMSV scale.

An exploratory factor analysis is used to discover items that co-vary due to a common source. Identifying if scale items co-vary is important, as this determines if the items are assessing the same construct (Devellis, 2012). An EFA is also used to determine the number of sources (i.e., factors) that are responsible for co-variation among items. The EFA results from study one, *Increasing Knowledge About Anti-Smoking Messages*, show that three factors (emotional arousal, novelty, and dramatic impact) were responsible for a significant portion (i.e., 85.74%) of the co-variation among the twelve scale items associated with the print PMSV scale. Specifically, the emotional arousal dimension explained 72.12% of the co-variation. The novelty dimension explained 9.43% of the covariance, while the dramatic impact dimension explained 4.19% of the covariance. These results suggest that the composite print PMSV scale consists of subscales that can successfully assess a message's ability to elicit emotions, its level of novelty, and its dramatic impact. This is a significant finding, as previous research (see Palmgreen et al., 2002) suggests that a message's ability to arouse emotions, its level of novelty, and its dramatic impact need to be assessed in order to determine a message's perceived message sensation value. Consequently, the new scale has the potential to

evaluate the PMSV of a print message because it consists of items that can successfully assess all three dimensions of the PMSV construct. The results of the EFA also support the idea that the same dimensions (emotional arousal, novelty, and dramatic impact) used to evaluate the perceived message sensation value of a video message can be used to assess the perceived sensation value of a print message (see Palmgreen et al., 2002).

Results from a confirmatory factor analysis that was conducted using data from study two, *Increasing Knowledge about Anti-Crystal Meth Messages*, also implied that the perceived sensation value of video and print messages can be determined via the same dimensions (emotional arousal, novelty, and dramatic impact). This assumption was supported, as the CFA revealed that the data from study two was an acceptable fit for the proposed 12-item three-factor model (see Figure 5.1). Additionally, the fit statistics associated with the print PMSV scale are similar to, and in some cases stronger than, the findings associated with the confirmatory factor analyses conducted to establish the reliability and validity of the video PMSV scale (see Palmgreen et al., 2002).

According to Palmgreen et al. (2002), in addition to the dimensions, the items from the video PMSV scale can be used to evaluate the PMSV of print messages if the items addressing sound are removed (i.e., *weak sound track-strong sound track* and *strong sound effects-weak sound effects*). Although the results of an EFA and CFA showed that the same dimensions/factors used to evaluate the PMSV of video messages can be used to evaluate the PMSV of print messages, there are some similarities and differences between the print and video PMSV scales in terms of the items that represent each dimension. The preliminary print emotional arousal subscale consisted of items from the video PMSV emotional arousal subscale and new items that, based on the

opinion of PMSV experts, could be used to assess the emotional arousal capabilities of a print message. The final print emotional arousal subscale consists of five items from the video emotional arousal subscale. The only items from the video emotional arousal dimension that did not appear successful at evaluating the perceived sensation value of print messages were *boring-exciting* and *arousing-not arousing*. The scale items that were not associated with the video emotional arousal subscale but were added to the preliminary print emotional arousal subscale did not have significant loadings; as a result, they were not included in the final version of the print emotional arousal subscale. Therefore, although not all of the items from Palmgreen et al.'s video emotional arousal subscale were successful in assessing the perceived sensation value of print messages, the majority of the items were successful.

The novelty subscale of the print PMSV scale (i.e., *familiar-unfamiliar*, *normal-strange*, *typical-atypical*, and *expected-unexpected*) consisted of different items than the novelty subscale of the video PMSV scale (i.e., *novel-ordinary*, *unique-common*, and *unusual-usual*). This was possible because, as stated previously, in addition to the items associated with the video novelty subscale, other items were added to the preliminary print novelty subscale in an attempt to identify the best items for assessing the novelty of a print message.

The dramatic impact subscale of the print PMSV scale consists of three items (*undramatic-dramatic*, *not graphic-graphic*, and *not intense-intense*); all of these items also appear in the dramatic impact subscale of the video PMSV scale. The two items from the video PMSV scale that were not successful at assessing the perceived sensation value of print messages were *didn't give me goosebumps-gave me goosebumps* and

*uncreative-creative*. The scale items that were not associated with the video PMSV scale that were added to the preliminary print dramatic impact subscale, due to their face validity, did not have significant loadings, which led to their elimination from the final scale. Therefore, the results from the current research only partially support the idea that the same items used to assess the dramatic impact of video messages can be used to assess the dramatic impact of print message.

Also, the results of the study showed that the print PMSV scale is more parsimonious than the video PMSV scale (to compare items from the print PMSV scale to the video PMSV scale see Palmgreen et al., 2002). The print PMSV scale has 12 items while the video PMSV scale has a total of 17 items. Furthermore, the outcome of this research project revealed that print dramatic impact and emotional arousal subscale are also more parsimonious than their video counterparts. More specifically, the video dramatic impact subscale has a total of six items while the print dramatic impact subscale has a total of three items. Similarly, the video emotional arousal scale has eight items while the print emotional arousal subscale has a total of five items. In contrast to the other print subscales, the print novelty subscale was less parsimonious than the video novelty subscale, as the print novelty subscale has four items while the video novelty subscale has three items.

In sum, this section provides a discussion of research question one (RQ1) by comparing the dimensions and items of the print PMSV scale to that of the video PMSV scale. Next, the results associated with research question two (RQ2) will be discussed.

### **RQ2: Stability Across Messages**

Research question two (RQ2) inquired about the new scale's ability to remain stable across different anti-drug messages (anti-smoking and anti-crystal meth). Consequently, anti-smoking messages were used for study one, while anti-crystal meth messages were used for study two. The study results demonstrate that the scale is stable across different sets of messages, suggesting that the scale structure identified using results from study one was not a chance occurrence, but rather that the scale items and factors are reliable. Additionally, it is important that the scale structure remains stable across different messages, because this highlights that the scale can be used successfully to assess both anti-smoking messages and anti-crystal meth messages. The following section discusses additional results that provide support for the reliability of the print PMSV scale.

### **RQ3: Reliabilities**

The Cronbach's coefficient alphas of the composite print PMSV scale and its dimensions were just as strong or stronger than those of the video PMSV scale (see Palmgreen et al, 2002). Since the PMSV scale and its subscales yielded strong inter-item correlation, this implies that the items measure the same variable. In the case of this research project, it is believed that the high inter-item correlation among all 12 items suggests that the scale is successfully assessing the same variable, that of the print PMSV. In addition, the high inter-item correlation associated with each dimension suggests that the items successfully assess each dimension (emotional arousal, novelty, and dramatic impact).



## **RQ4 and RQ5: Stability Across Sensation-seeking Levels and Ability to Distinguish Between High and Low Sensation Value Messages**

The results of the study showed that the print PMSV scale remained stable across sensation-seeking levels (RQ4). This means that both high and low sensation seekers viewed the high sensation value messages as high and the low sensation value messages as low. This is consistent with previous PMSV research; for example, according to Palmgreen et al. (2002), whether a message is high or low in sensation value should not be influenced by individual differences such as sensation-seeking levels. Instead, individual differences should influence whether a person prefers high or low sensation value messages. Additionally, the study showed that the print PMSV scale and its subscales successfully distinguish high from low sensation value messages. This reveals that the print PMSV scale and its subscales fulfilled the purpose for which they were developed. Since the scale has been successful at distinguishing high from low sensation value messages, this implies that it can be used to test the activation model of information exposure, thereby increasing the theory's heuristic provocativeness.

### **H1-H3: Convergent Validity**

#### **Affect Measures**

The composite print PMSV scale and all its subscales correlated positively and moderately with positive affect (H1a). The results of the study also revealed that the composite print PMSV scale and its dimensions have a positive moderate relationship with negative affect (H1b). Therefore, these results provide support for the convergent validity of the print PMSV scale and its dimensions. These findings are predominantly consistent with results associated with the video PMSV scale, as Palmgreen et al.'s

(2002) research highlighted that the composite video PMSV scale and two of its dimensions (emotional arousal and dramatic impact) correlated positively with positive and negative affect. However, the video novelty subscale provided mixed results, as it did not consistently correlate with all measures of positive and negative affect. It is not surprising that the print novelty subscale and video novelty subscale in some instances correlate with measures of affect, as research (e.g., Roseman, 1996) suggests that novelty has an impact on affect.

### **Cognitive Processing**

The results associated with H2 suggest that the composite print PMSV scale and all its subscales had a moderate to moderately strong positive relationship with cognitive processing (i.e., level of scrutiny to which a message is subjected). These findings, for the most part, are consistent with the results of previous studies. For instance, Stephenson and Palmgreen (2001) research revealed that, for both high and low sensation seekers, a positive relationship exists between the video PMSV scale and cognitive processing. Additionally, the results of Palmgreen et al.'s (2002) research aimed at establishing the reliability and validity of the video PMSV scale highlighted that, for both high and low sensation seekers, the composite video PMSV scale and two of its dimensions (emotional arousal and dramatic impact) correlated positively with cognitive processing. However, results from Palmgreen et al.'s research also emphasized that, for both high and low sensation seekers, the video novelty subscale did not correlate with cognitive processing.

### **Sensory Processing**

The composite print PMSV scale and all its dimensions had a weak positive relationship with sensory processing (i.e., attention given to the structural characteristics

of a message), but still provided support for their convergent validity. Palmgreen et al.'s (2002) research also revealed that, for both high and low sensation seekers, the composite video PMSV scale and two of its subscales (emotional arousal and dramatic impact) correlated positively with sensory processing. However, the video novelty subscale did not correlate with sensory processing. As stated previously, research suggests that novel stimuli receive more attention (see Berlyne & Dittkowsky, 1976; Daffner et al., 2006). Therefore, it was expected that a measure of novelty would correlate with sensory processing, as the more novel the structural features, the more likely a person is to pay attention to these features. Consequently, the novelty scale's relationship with sensory processing did not violate expectations. It is possible, however, that the relationship between sensory processing and the PMSV scale and its dimensions was weak because, although the structural features were novel, they were not novel to the extent that the novelty would lead to strong sensory processing.

The current section compared the findings regarding the convergent validity of the print PMSV scale to the findings regarding the convergent validity of the video PMSV scale. The next section discusses the divergent validity of the print PMSV scale. Thus far, research regarding the divergent validity of the video PMSV scale has not been published; as a result, the divergent validity of the print PMSV scale cannot be compared to the divergent validity of the video PMSV scale.

#### **H4-H6: Divergent Validity**

It was expected that personal involvement (H4), argument strength (H5), and communication apprehension (H6) would not have a relationship with the print PMSV scale and its dimensions. The results show that, as anticipated, personal involvement did

not correlate with the print PMSV scale and its subscales. They were not expected to correlate because, although research (see, Palmgreen & Stephenson, 2001; Petty & Cacioppo, 1986b) suggests that both perceived message sensation value and personal involvement influence cognitive processing (Palmgreen et al., 2002; Stephenson & Palmgreen, 2001), there is no evidence to suggest that they are correlated.

As expected, communication apprehension is not related to the print PMSV scale and its subscales. The print PMSV scale and the communication apprehension scale were not expected to correlate because, although they both assess the level of emotions elicited, the level of fear a person experiences while interacting with others should not influence the level of emotional, arousal, and sensory responses a person experiences while exposed to a message and vice versa. It was also expected that argument strength would not correlate with the print PMSV scale and its dimensions. The argument strength scale was expected not to correlate with the print PMSV scale because an argument strength scale assesses if arguments included in a message are logical (Zhao et al., 2011), while the print PMSV scale assesses the level of emotional, sensory, and arousal responses a person experiences during their exposure to a message (Palmgreen et al., 1991). There was, however, an unexpected finding regarding argument strength, as it had a moderately strong positive correlation with the print perceived message sensation value scale and its subscales. One possible reason for this finding is that both high sensation value messages included in this study made strong arguments, but also possessed the characteristics likely to elicit high levels of emotional, arousal, and sensory responses, while both low sensation value messages used for this research made weak arguments, but also only possessed content likely to elicit low levels of emotional, sensory, and

arousal responses. Consequently, the findings from this research project do not suggest that argument strength and PMSV are always related. Further research needs to be conducted to determine the relationship between these two variables.

### **H7 and H8: Predictive Validity**

#### **Perceived Message Effectiveness (PME)**

The results of the study showed that the perceived message sensation value of a print message has an impact on PME (H7). This finding is consistent with previous research on video messages, as Noar et al. (2010) found that the perceived message sensation value of a video message influences its perceived message effectiveness. However, results also showed that argument strength has a stronger impact on perceived message effectiveness than perceived message sensation value. Additionally, after controlling for argument strength and other confounding variables, PMSV was responsible for 3% of the variance in PME. This finding implies that the perceived message sensation value variable makes its own contribution to perceived message effectiveness. In general, these findings emphasize that, although the print perceived message sensation value of a message can be used to predict PME, it is only one of several variables that affect PME.

#### **Attitude Towards the Ad/Ad Liking**

Results from the study show that print PMSV is a predictor of ad liking (H8). However, the results also suggested that, of all the variables included in the regression analyses, PMSV had the strongest impact on attitude towards the ad/ad liking. The idea that message characteristics can influence ad liking is not a new finding, as advertising researchers (e.g., Callister & Stern, 2007; Wu, Linn, Fu & Sukoco, 2012) have conducted

several studies which support this idea. Additionally, various studies suggest that two of the message characteristics (emotional arousal and novelty) that influence the PMSV of a message directly impact ad liking. For example, Thorson and Page (1988) found that advertisements that elicit high levels of emotions were viewed more favorably than advertisements that elicited low levels of emotions. Sheinin, Varki, and Ashley (2011) found that a positive relationship exists between ad novelty and attitude towards the ad/ad liking. However, this is the first study to suggest that a message's perceived sensation value, and not just one of its dimensions, influences ad liking/attitude towards the ad.

### **H9 and H10: The Activation Model of Information Exposure**

The activation model of information exposure was not entirely supported by the findings of the current research. However, as proposed by the theory, high sensation seekers found high sensation value messages more effective than low sensation value messages (H9). This finding is important because it emphasizes that high sensation value messages, rather than low sensation value messages, should be used to gain the attention of high sensation seekers. This group is usually the target of health campaigns, as they are more likely than low sensation seekers to engage in risky behaviors (Zuckerman, 1994). Consequently, it is necessary to have an effective method for gaining their attention. On the other hand, based on the AMIE, it was expected that low sensation seekers would find low sensation value messages more effective than high (H10). The results, however, show that low sensation seekers found high sensation value messages more effective.

A possible explanation for this finding for low sensation seekers is that, according to the activation model of information exposure, individuals have a desired level of

arousal at which they feel comfortable. If a stimuli, in this case a message, does not achieve or maintain the level of arousal at which a person is comfortable, then the individual will likely not attend to the message. Additionally, if the level of arousal caused by the stimuli exceeds the level of arousal at which a person is comfortable, then the individual will also not attend to the message. Therefore, a message must maintain a person's desired levels of arousal in order to keep the person's attention.

It is believed that high sensation value messages cause arousal levels at which low sensation seekers feel uncomfortable and, as a result, they do not attend to these messages or find them effective. It is possible that low sensation seekers viewed the high sensation value messages associated with this study as effective because the high sensation value messages used in this research project were high, but not extremely high, in sensation value. Therefore, the high sensation value messages used did not make low sensation seekers uncomfortable to the point that they turned away from the message. The means of the high sensation value messages support this reasoning, as the anti-smoking high sensation value message scored a mean of 5.25 out of seven and the anti-crystal meth high sensation value message scored a mean of 5.44 out of seven on the perceived message sensation value scale for print messages.

This is not the only research project whose results show that low sensation seekers attend to high sensation value messages. Stephenson and Palmgreen (2001) found that, for low sensation seekers, as video PMSV increased so did cognitive, narrative, and sensory processing. Also, Noar et al. (2010) found that there was no significant difference between high and low sensation seekers' perception of the effectiveness of high sensation value messages. Thus far, this chapter provides a discussion of the findings associated

with this research project; however, it should be highlighted that, while this study resulted in several significant findings, it also possesses several limitations that should be considered.

### **Limitations**

The first limitation of this study is that the high sensation value messages used can only be classified as high, not extremely high, in sensation value, which might have affected the results of some of the analyses (e.g., testing the activation model of information exposure). However, obtaining messages that are extremely high in sensation value proved difficult. As a reminder, as the sensation value of a message increases, it becomes more graphic and intense. Therefore, one possible reason it was difficult to obtain extremely high sensation value messages is that messages that are extremely high in sensation value would probably not receive approval for public display out of fear of complaints from the public.

A second limitation of this research is that the print PMSV scale was tested using individuals from one population, that is, college students between the ages of 16 and 26. According to researchers (e.g., Cudeck & Browne, 1983), it is best to use samples from two different populations to test a scale; as a result, it can be known if the scale is stable across different populations. In this study, the scale was tested using one of the populations for which it was intended (i.e., young adults). However, its stability in other populations for which it can be beneficial is not known (e.g., children and adolescents). A third limitation is that this study was conducted using only drug-use prevention messages; therefore, it is not known if the print PMSV scale is stable across other health related messages. Therefore, at this time it cannot be assumed that the print PMSV scale



can be successfully employed to assess the sensation value of health related messages that are not focused on drug-use prevention (e.g., STD prevention messages).

Additionally, a fourth limitation of this research is that it did not test whether the scale can be employed to assess the perceived sensation value of messages that are not health related (e.g., messages advertising a product). Therefore, it cannot be assumed that the scale can be used to assess the perceived sensation value of messages that are not health related.

A fifth limitation of this study is the use of a median split to distinguish high from low sensation seekers in order to test the activation model of information exposure. According to some scholars, changing an interval level variable into a categorical variable does not take into consideration the variance associated with the construct. However, using a median split to distinguish high from low sensation seekers is consistent with previous research (e.g., Everett & Palmgreen, 1995; Helme et al., 2007; Noar et al., 2010; Stephenson & Palmgreen, 2001) testing the activation model of information exposure's applicability to video messages. Therefore, if a median split was not used for the current research, then it would be difficult to compare the findings associated with video messages to the findings associated with print messages. The current section outlines the limitations associated with this research project. The next section will address areas that can be considered for future research based on the findings of this study.

### **Future Directions**

The development of a scale to assess the perceived sensation value of print messages has opened several possibilities for future research. For instance, researchers

can continue to test the scale's stability across various messages and populations. They can also continue to conduct studies to improve the scale. Plus, individual subscales (emotional arousal, novelty, and dramatic impact) of the print PMSV scale can be employed to determine their impact on different outcome variables. Additionally, scholars can employ the scale to test if the activation model of information exposure is applicable to print messages. Furthermore, researchers can continue to investigate the direct link found between the perceived sensation value of print messages and perceived message effectiveness. Also, they can investigate the direct link between the perceived sensation value of print messages and attitude towards the ad/ad liking.

Future research should explore if there are other dimensions apart from emotional arousal, novelty, and dramatic impact that can be used to improve the reliability or validity of the print PMSV scale (see Appendix B). Such exploration is necessary because, while the print PMSV scale is an acceptable measure of print PMSV, it can be improved. Additionally, researchers can also investigate if there are items that can be added to the dramatic impact subscale that increase the variance explained by this factor, as currently the factor explains 4.19% of the shared variance. However, future researchers need to ensure that these are not just random items but rather items that capture the essence of the dramatic impact dimension.

For future studies, researchers can also test the scale's stability in non-American populations. This is important because, if the print PMSV scale is stable in non-American populations, it could be extremely beneficial in countries where the government or health organizations do not have the funding necessary to conduct video campaigns. Therefore, the print PMSV scale would assist these governments or organizations with launching

effective print campaigns. As previously mentioned, high sensation seekers are usually the individuals engaging in risky behaviors (see Zuckerman, 2007), and they are more likely to attend to high rather than low sensation value messages (Palmgreen et al., 2007); therefore, this scale would assist in ensuring that only high sensation value print messages are employed in campaigns aimed toward at-risk individuals (i.e., high sensation seekers). The population employed in this study (young adults) is not the only group that can benefit from the PMSV scale for print messages. In addition to young adults, other populations that can benefit from the print PMSV scale are adolescents and children, as they are still at the age where the sensation value of a message has the potential to influence their message preference (see Palmgreen et al., 2007; Stephenson & Palmgreen, 2001). Consequently, researchers can investigate whether the scale remains stable when administered to children and adolescents.

Additionally, for future research, scholars can investigate if the scale remains stable when used to assess the sensation value of health messages aimed at preventing risky behaviors other than drug use. The video PMSV scale was first tested using anti-cocaine and anti-marijuana messages (Palmgreen et al., 2002); however, the video PMSV scale has also been used to evaluate the sensation value of messages aimed at preventing the spread of sexually transmitted diseases (e.g., Noar et al., 2010). Therefore, researchers could also investigate if the print PMSV scale can be used to assess the sensation value of print messages used in campaigns aimed at preventing the spread of sexually transmitted diseases. Using the scale to assess the sensation value of non-drug related health messages will assist in increasing campaign developers' confidence that the

scale can be successfully used to distinguish high from low sensation value print messages.

In addition to the composite perceived message sensation value scale for print messages, the individual subscales can also be employed independently in future research studies. For instance, using the print emotional arousal subscale, researchers can investigate the impact of a message's emotional arousal capabilities on behavior, intentions, attitude towards ad, brand liking, perceived message effectiveness, etc. Employing the novelty and dramatic impact subscales, scholars can also look at the influence of a message's level of novelty and ability to cause a dramatic impact on the aforementioned outcomes.

According to the original premise of the activation model of information exposure, high sensation seekers should be more likely to attend to high sensation value messages, while low sensation seekers would be more likely to attend to low sensation value messages (Donohew et al., 1998). For this study, perceived message effectiveness was used as a proxy for attention. However, there are various other variables (e.g., recall, changes in attitudes, changes in behavior, and changes in intentions) that can be employed when testing the AMIE to determine if a message successfully gained a person's attention. Therefore, future research aimed at testing if the activation model of information exposure is applicable to print could use other measures of attention in addition to perceived message effectiveness to determine if sensation-seeking levels influence whether a person attends to high or low sensation value print messages.

The results of this research project and the research (e.g., Noar et al., 2010) associated with video messages suggest that there is a direct link between PMSV and

PME, and that the relationship is not necessarily mediated by sensation-seeking levels as previously stated by the activation model of information exposure. In addition to suggesting that there is a direct link between the perceived sensation value of print messages and PME, the results of this research project also suggest that there is a direct link between the PMSV of print messages and attitude towards the ad/ad liking. These findings suggest that researchers should consider testing if the perceived message sensation value variable is useful for designing print advertisements that are not public service announcements. For instance, marketing and advertising scholars could investigate if the PMSV of a print message advertising a product influences intentions to purchase the product, brand liking, ad recall, etc.

Another possible future research direction is to develop a print message sensation value scale. As previously mentioned, *perceived message sensation value* (PMSV) refers to a receiver's response to a message, while *message sensation value* (MSV) refers to attributes of a message (Morgan et al., 2003). Morgan et al. developed a scale that allows researchers to determine if a video message is high or low in sensation value based on the presence or absence of certain objective characteristics (e.g., presence or absence of a surprise twist ending, background noise, etc.). Therefore, researchers have the option to use the video MSV scale as a guide for building a message, while the video PMSV scale can subsequently be used for manipulation checks. Also, the video PMSV scale can be used to check the sensation value of pre-existing messages to decide if they are high or low in sensation value. Therefore, one possible future area of study is to develop a print MSV scale that can assist in designing high and low sensation value print messages,

while the current print PMSV scale can subsequently be used to conduct manipulation checks or to determine if a pre-existing message is high or low in sensation value.

### **Conclusion**

The current research project demonstrates that a reliable and valid scale can be developed to assess the perceived sensation value of print messages. The final version of the print PMSV scale consists of 12 items and three factors. Research results suggest that the scale and its subscales have strong inter-item correlation, and are stable across different drug messages (i.e., anti-smoking and anti-crystal meth messages) and sensation-seeking levels. Additionally, results showed that the scale can successfully distinguish between high and low sensation value messages, which is the reason the scale was developed. The findings associated with this research project also revealed that the new print PMSV scale and its subscales have construct validity (i.e., convergent and divergent validity). The print PMSV scale's and its subscales' convergent validity were established because, as expected, they correlated positively with measures of affect, cognitive processing, and sensory processing. On the other hand, the divergent validity of the print PMSV scale and its subscales were established because, as expected, they did not correlate with personal involvement and communication apprehension. However, there was an unexpected finding that led to the divergent validity of the scale being questioned. It was assumed that argument strength would not correlate with the print PMSV scale and its subscales, but the results of the study showed that the print PMSV scale and its subscales had a moderately strong correlation with argument strength. The predictive validity of the scale was also established, as results showed that the print

PMSV scale had an impact on perceived message effectiveness and attitude towards the ad/ad liking.

Lastly, this research project constitutes the first attempt to test if the activation model of information exposure is applicable to print messages, and this test was only made possible because of the development of the print PMSV scale. According to the activation model of information exposure, high sensation seekers are more likely to attend to high sensation value messages, while low sensation seekers are more likely to attend to low sensation value messages (Donohew et al., 1998). The results of the research project indicated that both high and low sensation seekers found the high sensation value print messages to be more effective than the low sensation value print messages. While the finding regarding low sensation seekers is not consistent with the AMIE, it is consistent with previous research conducted using the video PMSV scale (see Noar et al., 2010; Stephenson & Palmgreen, 2001). Consequently, this research study implies that high sensation value print messages, not low, should be used if a campaign developer is attempting to convince high sensation seekers not to engage in drug use. High sensation seekers are usually the targets of campaigns because they are more likely to engage in risky behaviors, such as alcohol and drug use, than low sensation seekers (Zuckerman, 2007). Additionally, the results of this research imply that high sensation value messages also have the potential to capture the attention of low sensation seekers, not just high sensation seekers, as the activation model of information exposure suggests.

## Appendices

### Appendix A: Preliminary Perceived Message Sensation Value Scale for Print Messages

Preliminary Novel Subscale									
1.	Unique	1	2	3	4	5	6	7	Common
2.	Unusual	1	2	3	4	5	6	7	Usual
3.	Novel	1	2	3	4	5	6	7	Ordinary
4.	Unoriginal	1	2	3	4	5	6	7	Original
5.	Familiar	1	2	3	4	5	6	7	Unfamiliar
6.	Normal	1	2	3	4	5	6	7	Strange
7.	Imaginative	1	2	3	4	5	6	7	Unimaginative
8.	Typical	1	2	3	4	5	6	7	Atypical
9.	Expected	1	2	3	4	5	6	7	Unexpected
10.	Unpredictable	1	2	3	4	5	6	7	Predictable
11.	Old	1	2	3	4	5	6	7	New

Reverse coded: 1, 2, 3, 7, & 10



Appendix A, Preliminary Perceived Message Sensation Value Scale for Print Messages  
(continued)

Preliminary Emotional Arousal Subscale									
1.	Emotional	1	2	3	4	5	6	7	Unemotional
2.	Arousing	1	2	3	4	5	6	7	Not Arousing
3.	Involving	1	2	3	4	5	6	7	Uninvolving
4.	Boring	1	2	3	4	5	6	7	Exciting
5.	Powerful Impact	1	2	3	4	5	6	7	Weak Impact
6.	Stimulating	1	2	3	4	5	6	7	Not Stimulating
7.	Strong Visuals	1	2	3	4	5	6	7	Weak Visuals
8.	Not Shocking	1	2	3	4	5	6	7	Shocking
9.	Not Appalling	1	2	3	4	5	6	7	Appalling
10.	Not Moving	1	2	3	4	5	6	7	Moving

Reverse coded: 1, 2, 3, 5, 7 & 9

Appendix A, Preliminary Perceived Message Sensation Value Scale for Print Messages  
(continued)

Preliminary Dramatic Impact Subscale									
1.	Undramatic	1	2	3	4	5	6	7	Dramatic
2.	Not Graphic	1	2	3	4	5	6	7	Graphic
3.	Not Creative	1	2	3	4	5	6	7	Creative
4.	Not Intense	1	2	3	4	5	6	7	Intense
5.	Did not give me goose bumps	1	2	3	4	5	6	7	Gave me goose bumps
6.	Did not blow my mind	1	2	3	4	5	6	7	Blew my mind
7.	Hair Raising	1	2	3	4	5	6	7	Not Hair Raising
8.	Extreme	1	2	3	4	5	6	7	Not Extreme
9.	Electrifying	1	2	3	4	5	6	7	Calm
10.	Not Interesting	1	2	3	4	5	6	7	Very Interesting
11.	Impressive	1	2	3	4	5	6	7	Unimpressive
12.	Unforgettable	1	2	3	4	5	6	7	Forgettable
13.	Astonishing	1	2	3	4	5	6	7	Not Astonishing

Reverse coded: 7, 8, 9, 11, 12, & 13

## Appendix B: Additional Dimensions that Influence the Perceived Sensation Value of a Message

The other constructs whose degree of presence can influence a message's perceived sensation value but were excluded from the PMSV scale for print messages are physiological arousal, complexity, and ambiguity. Some of these constructs are excluded because it is difficult to identify items that would assess their level of presence. Additionally, in other instances the dimension was excluded because its inclusion would require additional research that is beyond the scope of this study.

**Physiological arousal.** According to Zuckerman (2007), interest in and attention to a stimulus is expressed through behavioral and physiological responses known as orienting reflexes. These responses occur when individuals cease their current activity and turn their heads in the direction of the stimulus of interest. Orientating responses include skin conductance responses and the deceleration/acceleration of the heart rate. Skin conductance response (SCR) involves a researcher measuring changes in the skin's ability to conduct electricity. The skin momentarily becomes a better conductor of electricity (due to changes in perspiration) when a person experiences a stimulus that is arousing (Lawson et al., 2012).

Researchers have investigated the influence that variations in characteristics associated with the sensation value of a message have on an individual's skin conductance response. Smith et al.'s (1986) study revealed that SCR has a positive correlation with word intensity. Specifically, Smith and colleagues (1986) found that both high and low sensation seekers had significantly greater SCR when they were exposed to loaded words versus when they were exposed to neutral words. In another study, Smith et al. (1990) observed the SCR of high and low sensation seekers after exposing them to

words and visuals that were low, medium, and high in sexual intensity. The results of the study showed that as stimuli intensified, there was a significant increase in SCR for high and low sensation seekers.

Another orientating reflex that has received attention from scholars is changes in heart rate. According to Zuckerman (2007), individuals experience a deceleration in heart rate when a stimulus captures their attention. However, this hypothesis has been disputed (see Graham, 1979; Orlebeke & Feij, 1979; Ridgeway & Hare, 1981; Zuckerman, Simons, & Como, 1988). Currently, the relationship that exists among heart rate, arousal, sensation seeking, attention, and stimuli characteristics is unclear. Consequently, it is not known whether heart rate changes can be used to distinguish high from low sensation value messages.

Physiological arousal was not included as a dimension of the print PMSV scale because it is usually difficult for a receiver to notice physiological changes associated with message exposure. The best means of assessing physiological arousal (e.g., heart rate, sweating, etc.) would involve the use of technology (Ridgeway & Hare, 1981; Smith et al., 1990) instead of perception. Therefore, using receiver perceptions to determine physiological arousal (e.g., heart rate, sweating, etc.) would lead to skewed data that would influence the reliability and validity of the physiological arousal scale. Additionally, this dimension was not included because research regarding the physiological changes that are experienced as a result of a message's sensation value has not been extensively evaluated. Consequently, there is not enough research to guide item creation for a physiological arousal subscale. Palmgreen and colleagues' dramatic impact subscale contains one item (e.g., *didn't give me goose bumps-gave me goose bumps*)

aimed at using individuals' physiological responses to determine the sensation value of a message. This item will also be included in the dramatic impact subscale for print messages because it is a physiological change that individuals can not only feel but also observe visually. Also, goose bumps are a sign that a stimulus is highly arousing (e.g., Benedek & Kaernbach, 2011). Therefore, presence or absence can be used to aid in assessing the sensation value of a message. In addition to the goose bumps, other items referring to physical arousal are included in the dramatic impact subscale; however, these items are not based on actual physical response but are popular phrases (e.g., "hair raising" or "blew my mind") individuals use to express the power of a stimulus. The next dimension whose absence from the video PMSV scale might be questioned is complexity.

**Complexity.** Messages perceived as high in sensation value are usually described as complex, while those perceived as low in sensation value are usually described as lacking complexity (Donohew et al., 1998). It is also believed that characteristics associated with messages perceived as high in sensation value are more likely to attract high sensation seekers. However, characteristics associated with messages low in sensation value are likely to attract low sensation seekers. Zuckerman (1994) stated that among high sensation seekers there is a greater preference for complex stimuli, while low sensation seekers are attracted to simple stimuli.

Zuckerman, Bone, Neary, Mangelsdorff, and Brustmam (1972) conducted a study in which high and low sensation seekers were given a 400-item figure preference test to identify which shapes they liked or disliked. It was found that high sensation seekers preferred designs that were complex, asymmetrical, and suggest movement. On the other

hand, low sensation seekers preferred designs that were simple and symmetrical. In a study by Furnham and Bunyan (1988), high and low sensation seekers were exposed to abstract paintings of high and low complexity. The results of this study also reveal that there is a positive relationship between preference for complexity and sensation seeking. In another study conducted by Martin, Sherrard, and Wentzel (2005), the researchers examined the relationship between sensation seeking and preference for website complexity. An analysis of the data revealed that high sensation seekers prefer websites that contain complex visual designs while low sensation seekers prefer websites with simple visual designs.

Based on these findings, it is possible that assessing complexity could aid in determining the sensation value of a message. However, complexity was not selected for inclusion in the print PMSV scale. A subscale assessing complexity was not included in the print PMSV scale because research has not explored its influence on emotional, sensory, and arousal responses. This information is crucial, as in order for a variable to be considered a determinant of PMSV, there has to be support that its presence leads to arousal while its absence reduces the level of arousal elicited by a message. This support is necessary because the presence of variables assessed by each dimension signifies that a message is high in sensation value while their absence signifies that a message is low in sensation value. All dimensions included in the print PMSV scale are backed by research suggesting their influence on sensory, emotional, and/or arousal responses (see Palmgreen et al., 2002; Smith et al., 1986, 1990). Even though complexity was not selected for inclusion in the print PMSV scale, it can be explored as an additional dimension in future research. After reviewing the existing literature, it is evident that the

extent to which a message is abstract might influence whether a message is classified as high or low in sensation value.

**Ambiguity.** Messages perceived as high in sensation value are usually described as abstract and ambiguous, while messages low in sensation value are usually representational and realistic (Donohew et al., 1998). Based on the activation model of information exposure, characteristics of high sensation value messages should gain the attention of high sensation seekers, while characteristics of low sensation value messages should capture the attention of low sensation seekers. Zuckerman and Ulrich (1983) and several other studies (e.g., Furnham & Walker, 2001; Tobacyk, Myers & Bailey, 1981) have confirmed that high sensation seekers prefer media content that is ambiguous, fantastical, incongruous, and abstract. On the other hand, low sensation seekers prefer media content that represents reality, can be considered normal, and is unambiguous.

Even though the preference of high and low sensation seekers supports the idea that ambiguity is a characteristic that has the potential to influence the sensation value of a message, it was not included as a dimension of the print PMSV scale. Like complexity, a subscale assessing ambiguity was not selected for inclusion in the print PMSV scale because there is no research highlighting how ambiguity influences emotional, sensory, or arousal responses. This is key, as variables that influence PMSV should lead to high levels of arousal when present, and when absent should result in a message being less arousing. Therefore, before a subscale assessing ambiguity can be included in a scale aimed at assessing the PMSV of a message, more research needs to be conducted to identify its influence on emotional, sensory, and arousal responses.

In sum, it has been highlighted that there are three additional dimensions that have the potential to be included in the print PMSV scale. However, further research needs to be conducted to learn more about their relationship to a message's sensation value before they can be added to a scale assessing the construct.



## Appendix C: Description of Print Messages

<p style="text-align: center;"><b>Low Sensation Value Anti-smoking Message One</b></p> <p>Low sensation value anti-smoking message one was created by the U.S. Department of Health and Human Services (2013). The message included an image of a man with the phrase, “I QUIT” and a no-smoking symbol on his shirt. The message also has the phrase, “WARNING: Quitting smoking now greatly reduces serious risks to your health.” The print message includes a number that a person can call to receive assistance to quit smoking.</p>	<p style="text-align: center;"><b>Low Sensation Value Anti-smoking Message Two</b></p> <p>Low sensation value anti-smoking message two is a modification of a message retrieved from an online database of images (Shutterstock, n.d.). The advertisement depicts the hands of an individual breaking a cigarette in two with the phrase, “STOP SMOKING, GET BACK YOUR POWER.”</p>
<p style="text-align: center;"><b>Low Sensation Value Anti-smoking Message Three</b></p> <p>Low sensation value anti-smoking message three was created for the New York City Department of Health and Hygiene (2011). It includes a picture of a man smiling and he has no visible health complications. The print message also includes the phrases, “I only smoke five cigarettes a day” and “He could still have an aneurysm. One cigarette is one too many.” The message also provides a number and website an individual can use to receive help.</p>	<p style="text-align: center;"><b>Low Sensation Value Anti-smoking Message Four</b></p> <p>Low sensation value anti-smoking message four is a modification of an advertisement retrieved from an online health blog (Health and Care, 2012). The message contains a picture of two cigarettes with an X across the cigarettes. It also includes the phrase, “Quit Smoking.”</p>

<p style="text-align: center;"><b>Low Sensation Value Anti-smoking Message Five</b></p> <p>Low sensation value anti-smoking message five is a modification of an image obtained from an online database of images (Rolera LLC, 2011). The advertisement includes a picture of a lit cigarette with the phrase “Quit Smoking.”</p>	<p style="text-align: center;"><b>High Sensation Value Anti-smoking Message One</b></p> <p>High sensation value anti-smoking message one is part of the Center for Disease Control and Prevention (2014) <i>Tips from a Former Smoker</i> campaign. The message has a man seated on a bed preparing to put on his prosthetic legs because both legs have been amputated below the knee. The following phrases were included in the message, “ALLOW EXTRA TIME TO PUT ON YOUR LEGS. Brandon, age 31, Diagnosed at 18, North Dakota.” The message highlights that smoking resulted in Brandon developing Buerger’s disease, which reduces blood supply to a person’s legs and results in amputations. The advertisement also highlights a toll-free number and website individuals can use to receive assistance to stop smoking.</p>
<p style="text-align: center;"><b>High Sensation Value Anti-smoking Message Two</b></p> <p>High sensation value anti-smoking message two was developed by the Australian Government’s Department of Health and Ageing (2012a) to be used on cigarette packaging. The heading of the message states, “SMOKING CAUSES LUNG CANCER.” Also, the advertisement includes a picture of an extremely skinny bald man lying in bed; he appears to be dead. Additionally, the message has the phrase, “BRYAN DIED AGED 34.” The ad also features a second picture of Bryan looking healthier with long hair and the caption, “10 WEEKS EARLIER.”</p>	<p style="text-align: center;"><b>High Sensation Value Anti-smoking Message Three</b></p> <p>High sensation value anti-smoking message three was launched as part of the Canadian Government’s campaign to reduce smoking among its populace (Health Canada, 2012b). In this message, a person is undergoing eye surgery (only one eye is visible). The individual is receiving an injection on his or her iris. The message warns individuals that smoking increases a person’s risk of blindness, as smoking can cause muscular degeneration, which in most cases cannot be effectively treated. There is also a number and website provided for individuals to find assistance if they would like to stop smoking.</p>

<p><b>High Sensation Value Anti-smoking Message Four</b></p> <p>High sensation value anti-smoking message four was created as part of the Canadian Government’s effort to reduce smoking among its population (Health Canada, 2012a). The message includes the disfigured tongue of someone with cancer and highlights that smoking causes oral cancer. The message also states that oral cancer can lead to an individual losing all or parts of his/her tongue. A number and website that an individual can contact if they would like to quit smoking is also provided.</p>	<p><b>High Sensation Value Anti-smoking Message Five</b></p> <p>High sensation value anti-smoking message five was developed by the Australian Department of Health and Ageing (2012b) for use on cigarette packaging. The message depicts a foot that has been affected by gangrene. The message also highlights that smoking narrows and blocks a person’s blood vessels, which reduces blood supply to a person’s feet, legs, hands, and arms and can lead to pain, sores, and gangrene. Additionally, the message includes a number and website that individuals can contact for smoking cessation support.</p>
<p><b>Low Sensation Value Anti-crystal Meth Message One</b></p> <p>Low sensation value anti-crystal meth message one was created for the multimedia blog <i>Youth in Charge</i> (2010). It includes a picture of four teens. At the top of the picture is the phrase, “ If you are on Meth you are not in control.” Below the picture of the teens is the phrase, “Meth prevention, Don’t do drugs. Be yourself, the only way to overcome problems.”</p>	<p><b>Low Sensation Value Anti-crystal Meth Message Two</b></p> <p>Low sensation value anti-crystal meth message two was created for the Meth Project Foundation, Inc (2010a). The picture features earphones, a necklace, a photograph of friends, and other items that signify friendship. This message includes the phrase, “Before meth I had a best friend. Now I have a Junkie.”</p>

<p><b>Low Sensation Value Anti-crystal Meth Message Three</b></p> <p>Low sensation value anti-crystal meth message three was created for the Narconon International (2014) rehab services website. The message has a plain white background with an image of crystal meth. Specifically, the message highlights three effects of crystal meth: aggression, violent behavior, and psychotic behavior.</p>	<p><b>Low Sensation Value Anti-crystal Meth Message Four</b></p> <p>Low sensation value anti-crystal meth message four was obtained from the Health Medical Today (2014) website. This message has a background image of crystal meth with the words, “Crystal meth usage is harmful.”</p>
<p><b>Low Sensation Value Anti-crystal Meth Message Five</b></p> <p>Low sensation value anti-crystal meth message five was developed for the Meth Project Foundation, Inc (2010b). The picture associated with this message was taken inside a home and focuses on the framed picture of a happy young lady holding a diploma. The message also includes the statement, “BEFORE METH I HAD A SISTER. NOW I HAVE A RUNAWAY.”</p>	<p><b>High Sensation Value Anti-crystal Meth Message One</b></p> <p>High sensation value anti-crystal message one was created for the Meth Project Foundation, Inc (2008a). In this message there is a man lying on the floor of a living room with his head bleeding. It appears the man is being attacked and robbed by two men. The message includes the statement, “BEATING AN OLD MAN FOR MONEY ISN’T NORMAL. But on meth it is.”</p>

<p style="text-align: center;"><b>High Sensation Value Anti-crystal Meth Message Two</b></p> <p>High sensation value anti-crystal message two was created for the Meth Project Foundation, Inc (2008d). The message has a drab background. It depicts a dirty-looking young lady with messy hair and dark circles under her eyes. This young lady is lying on the grass with a man on top of her. The advertisement includes the statement, “15 BUCKS FOR SEX ISN’T NORMAL. BUT ON METH IT IS.”</p>	<p style="text-align: center;"><b>High Sensation Value Anti-crystal Meth Message Three</b></p> <p>High sensation value anti-crystal meth message three was developed for the Meth Project Foundation, Inc (2008b) and displays a young man in dirty clothes and grimy surroundings using his finger to dig into his skin. The message includes the statement, “DIGGING FOR BUGS UNDER YOUR SKIN ISN’T NORMAL. BUT ON METH IT IS.”</p>
<p style="text-align: center;"><b>High Sensation Value Anti-crystal Meth Message Four</b></p> <p>High sensation value anti-crystal meth message four was developed for the Meth Project Foundation, Inc (2007). In this message, a woman is sitting on a kitchen floor with her back against the cupboard. She appears to have a bruised eye and blood on her clothes. The message features the statement, “MY MOM KNOWS I’D NEVER HURT HER. THEN SHE GOT IN THE WAY.”</p>	<p style="text-align: center;"><b>High Sensation Value Anti-crystal Meth Message Five</b></p> <p>High sensation value anti-crystal meth message five was created for the Meth Project Foundation, Inc (2008c). It depicts a drab background with a young man who appears hurt and is lying on the ground. This print message includes the statement, “LEAVING A FRIEND FOR DEAD ISN’T NORMAL. BUT ON METH IT IS.”</p>

## Appendix D: Consent Form for Message Selection Study

### Consent to Participate in a Research Study

#### **Dimensions and Validation of Perceived Message Sensation Value Scale for Print Messages**

##### **WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?**

You are being invited to take part in a research study assessing the quality and characteristics of messages. If you volunteer to take part in this study, you will be one of about 100 people to do so.

##### **WHO IS DOING THE STUDY?**

The person in charge of this study is Lianne F. Grant, a student at the University of Kentucky, Department of Communication. She is being guided in this research by Dr. Donald W. Helme. There may be other people on the research team assisting at different times during the study.

##### **WHAT IS THE PURPOSE OF THIS STUDY?**

Through this study, we hope to learn what characteristics print messages should possess in order to gain a person's attention.

##### **ARE THERE REASONS YOU SHOULD NOT TAKE PART IN THIS STUDY?**

In order to participate in this study, you must be between the ages of 18 and 26 and a student at the University of Kentucky.

##### **WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?**

This paper-based survey will be administered in a classroom setting on the University of Kentucky campus. The survey will take about 45-60 minutes to complete.

##### **WHAT WILL YOU BE ASKED TO DO?**

You will be asked to complete survey questions about the type of activities you prefer, to evaluate messages, and to provide demographic information.

##### **WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?**

To the best of our knowledge, this study should not expose you to any additional discomforts or risks than those you would experience in everyday life. However, if you do experience some discomfort due to the nature of images and questions associated with this survey, you can receive help at the University Counseling Center (UKCC). To schedule an appointment, call 859-257-8701 or visit the office in 201 Frazee Hall and speak with the receptionist, Monday-Friday from 8:00A.M. - 4:30P.M. UKCC also offers emergency counseling.

##### **WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?**

There is no guarantee that you will get any benefits from taking part in this study.

However, your willingness to take part may, in the future, help message designers better understand how to design messages that can persuade individuals to adopt good health practices.

**DO YOU HAVE TO TAKE PART IN THE STUDY?**

If you decide to take part in this study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering.

**IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?**

If you are being offered this study as a means of completing the SONA requirement, but you do not want to participate in this study, there are no other choices except to sign up for another study through SONA or complete the alternative SONA assignment.

If you were invited to participate in this study as an extra credit opportunity, but you do not want to participate, your professor will offer an alternative assignment that will provide you with an opportunity to receive your extra credit points. This alternative assignment will require similar time commitment and effort as this survey.

If you were not offered SONA research credit or extra credit for completing this survey and you do not wish to participate in this study, you have no other choice except not to participate in this study.

**WHAT WILL IT COST YOU TO PARTICIPATE?**

There are no costs associated with taking part in this study.

**WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?**

If you are completing this study in order to fulfill the Department of Communication SONA requirement, you will receive 1 SONA research credit for participating in this study.

If you were invited to participate in this study as an extra credit opportunity, your instructor will make the decision regarding the number of extra credit points that you will receive. Extra credit will not be awarded for the survey if you decide not to participate in the study, if you withdraw early from the study, or if you do not qualify for the study. Instead, you will have to complete an alternative assignment offered by your professor in order to receive extra credit points. This alternative assignment will require similar time commitment and effort as the survey.

If you were not offered SONA research credit or extra credit for participating in this study, then you will not receive any rewards for your participation.

**WHO WILL SEE THE INFORMATION THAT YOU GIVE?**

This study is anonymous. That means that no one, not even members of the research

team, will know that the information you gave came from you. Your information will be combined with data from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

### **CAN YOUR TAKING PART IN THE STUDY END EARLY?**

If you decide to take part in the study, you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

For participants taking this study to complete their SONA requirement, if you decide to withdraw early from the study you will have to sign up for another study or sign up for the alternative assignment in order to receive your SONA research credit.

For participants who are offered this survey as an extra credit opportunity, if you decide to end the study early, an alternative assignment will be provided in order to offer you an opportunity to receive extra credit. This alternative assignment will require similar time commitment and effort as the survey.

For participants who were not offered SONA or extra credit for their participation in this study, you can turn in your survey early without any additional concerns.

### **ARE YOU PARTICIPATING OR CAN YOU PARTICIPATE IN ANOTHER RESEARCH STUDY AT THE SAME TIME AS PARTICIPATING IN THIS ONE?**

You may take part in this study if you are currently involved in another study.

### **WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?**

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Lianne F. Grant, at [lisannegrant@uky.edu](mailto:lisannegrant@uky.edu). If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky at 859-257-9428 or toll free at 1-866-400-9428.

\_\_\_\_\_  
Signature of person agreeing to take part in the study

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed name of person agreeing to take part in the study

\_\_\_\_\_  
Name of (authorized) person obtaining informed consent

\_\_\_\_\_  
Date



## Appendix E: Message Selection Survey

### Message Evaluation

**Thank you for deciding to participate in this study.**

The goal of this study is to learn more about the characteristics of messages that are likely to gain your attention. In this survey, you will be asked to evaluate the features of print messages. Your answers will help message designers better understand how to design messages that can persuade individuals to adopt good health practices.

**Instructions:**

- **Do not start the survey until you are instructed to begin.**
- Answer all the questions asked in this survey.
- Do not look ahead or behind in the survey as you fill it out.
- Provide honest answers about what you think.

**SMOKING MESSAGES  
PLEASE GO TO THE NEXT PAGE**

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**Low Sensation Value Anti-smoking Message One (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**2. This message is emotional.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**3. This message is dramatic.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**4. This message is unique.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**5. This message is exciting.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**6. This message is intense.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**Low Sensation Value Anti-smoking Message Two (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**2. This message is emotional.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**3. This message is dramatic.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**4. This message is unique.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**5. This message is exciting.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**6. This message is intense.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**High Sensation Value Anti-smoking Message One (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**High Sensation Value Anti-smoking Message Three (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**High Sensation Value Anti-smoking Message Four (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**High Sensation Value Anti-smoking Message Five (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree



**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**Low Sensation Value Anti-smoking Message Three (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**2. This message is emotional.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**3. This message is dramatic.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**4. This message is unique.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**5. This message is exciting.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**6. This message is intense.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**High Sensation Value Anti-smoking Message Two (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**Low Sensation Value Anti-smoking Message Four (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**Low Sensation Value Anti-smoking Message Five (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**CRYSTAL METH MESSAGES  
PLEASE GO TO THE NEXT PAGE**

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**Low Sensation Value Anti-crystal Meth Message Five (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**2. This message is emotional.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**3. This message is dramatic.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**4. This message is unique.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**5. This message is exciting.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**6. This message is intense.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**Low Sensation Value Anti-crystal Meth Message One (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**2. This message is emotional.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**3. This message is dramatic.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**4. This message is unique.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**5. This message is exciting.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**6. This message is intense.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**High Sensation Value Anti-crystal Meth Message Five (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**2. This message is emotional.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**3. This message is dramatic.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**4. This message is unique.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**5. This message is exciting.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**6. This message is intense.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree



**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**High Sensation Value Anti-crystal Meth Message Four (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**High Sensation Value Anti-crystal Meth Message Three (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**Low Sensation Value Anti-crystal Meth Message Two (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**High Sensation Value Anti-crystal Meth Message Two (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**2. This message is emotional.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**3. This message is dramatic.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**4. This message is unique.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**5. This message is exciting.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**6. This message is intense.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**High Sensation Value Anti-crystal Meth Message One (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**Low Sensation Value Anti-crystal Meth Message Three (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. This message is emotional.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. This message is dramatic.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. This message is unique.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. This message is exciting.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. This message is intense.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** After viewing the message below *circle* the extent to which you agree or disagree with the accompanying statements.

**Low Sensation Value Anti-crystal Meth Message Four (see Appendix C for message description)**

**1. This message is novel.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**2. This message is emotional.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**3. This message is dramatic.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**4. This message is unique.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**5. This message is exciting.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**6. This message is intense.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Instructions:** The next few questions ask you to identify the types of activities you enjoy. Please state the extent to which you agree or disagree with each statement.

**1. I would like to explore strange places.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**2. I would like to take off on a trip with no pre-planned routes or timetables.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**3. I get restless when I spend too much time at home.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**4. I prefer friends who are excitingly unpredictable.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**5. I like to do frightening things.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**6. I would like to try bungee jumping.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**7. I like wild parties.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**8. I would like to have new and exciting experiences, even if they are illegal.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** Thanks for all your hard work so far. Now we need to ask you a few questions so that we can describe our sample. All of your answers are COMPLETELY ANONYMOUS!

Please use the list below to indicate your AGE.

- ☐ 18 years old
- ☐ 19 years old
- ☐ 20 years old
- ☐ 21 years old
- ☐ 22 years old
- ☐ 23 years old



☐ Above 24 years old

**What is your gender?**

Male      Female

**What is your current class rank?**

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior
- ☐ Graduate Student
- ☐ Other \_\_\_\_\_

**What is your race?**

- ☐ White/Caucasian
- ☐ African American
- ☐ Hispanic
- ☐ Asian
- ☐ Native American
- ☐ Pacific Island
- ☐ Other \_\_\_\_\_

**Thank you for your Participation ☺**

## Appendix F: Consent Form for Anti-smoking and Anti-crystal Meth Study

### Consent to Participate in a Research Study

#### **Dimensions and Validation of Perceived Message Sensation Value Scale for Print Messages**

##### **WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?**

You are being invited to take part in a research study assessing the quality and characteristics of messages. If you volunteer to take part in this study, you will be one of about 800 people to do so.

##### **WHO IS DOING THE STUDY?**

The person in charge of this study is Lisanne F. Grant, a student at the University of Kentucky, Department of Communication. She is being guided in this research by Dr. Donald W. Helme. There may be other people on the research team assisting at different times during the study.

##### **WHAT IS THE PURPOSE OF THIS STUDY?**

Through this study, we hope to learn what characteristics print messages should possess in order to gain a person's attention.

##### **ARE THERE REASONS YOU SHOULD NOT TAKE PART IN THIS STUDY?**

In order to participate in this study, you must be between the ages of 18 and 26 and a student at the University of Kentucky. Additionally, you may either complete the survey titled *Increasing Knowledge about Anti-Smoking Messages* or *Increasing Knowledge About Anti-Crystal Meth Messages*. You should not take both surveys.

##### **WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?**

This survey can be completed via computer from any location or at any time. The survey will take about 45-60 minutes to complete.

##### **WHAT WILL YOU BE ASKED TO DO?**

You will be asked to complete survey questions about the type of activities you prefer, to evaluate messages, and to provide demographic information.

##### **WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?**

To the best of our knowledge, this study should not expose you to any additional discomforts or risks than those you would experience in everyday life. However, if you do experience some discomfort due to the nature of images and questions associated with this survey, you can receive help at the University Counseling Center (UKCC). To schedule an appointment, call 859-257-8701 or visit the office in 201 Frazee Hall and speak with the receptionist, Monday-Friday from 8:00A.M. - 4:30P.M. UKCC also offers emergency counseling.

**WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?**

There is no guarantee that you will get any benefits from taking part in this study. However, your willingness to take part may, in the future, help message designers better understand how to design messages that can persuade individuals to adopt good health practices.

**DO YOU HAVE TO TAKE PART IN THE STUDY?**

If you decide to take part in this study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering.

**IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?**

If you are being offered this study as a means of completing the SONA requirement, but you do not want to participate in this study, there are no other choices except to sign up for another study through SONA or complete the alternative SONA assignment.

If you were invited to participate in this study as an extra credit opportunity, but you do not want to participate, your professor will offer an alternative assignment that will provide you with an opportunity to receive your extra credit points. This alternative assignment will require similar time commitment and effort as this survey.

If you were not offered SONA research credit or extra credit for completing this survey and you do not wish to participate in this study, you have no other choice except not to participate in this study.

**WHAT WILL IT COST YOU TO PARTICIPATE?**

There are no costs associated with taking part in this study.

**WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?**

If you are completing this study in order to fulfill the Department of Communication SONA requirement, you will receive 1 SONA research credit for participating in this study.

If you were invited to participate in this study as an extra credit opportunity, your instructor will make the decision regarding the number of extra credit points that you will receive. Extra credit will not be awarded for the survey if you decide not to participate in the study, if you withdraw early from the study, or if you do not qualify for the study. Instead, you will have to complete an alternative assignment offered by your professor in order to receive extra credit points. This alternative assignment will require similar time commitment and effort as the survey.

If you were not offered SONA research credit or extra credit for participating in this study, then you will not receive any rewards for your participation.

### **WHO WILL SEE THE INFORMATION THAT YOU GIVE?**

This study is anonymous. That means that no one, not even members of the research team, will know that the information you gave came from you. Your information will be combined with data from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

Please be aware, while we make every effort to safeguard your data once received from the online survey/data gathering company, given the nature of online surveys, as with anything involving the Internet, we can never guarantee the confidentiality of the data while still on the survey/data gathering company's servers, or while en route to either them or us. It is also possible the raw data collected for research purposes may be used for marketing or reporting purposes by the survey/data gathering company after the research is concluded, depending on the company's Terms of Service and Privacy policies. However, this study is anonymous. That means that no one, not even members of the research team, will know that the information you give came from you.

### **CAN YOUR TAKING PART IN THE STUDY END EARLY?**

If you decide to take part in the study, you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

For participants taking this study to complete their SONA requirement, if you decide to withdraw early from the study you will have to sign up for another study or sign up for the alternative assignment in order to receive your SONA research credit.

For participants who are offered this survey as an extra credit opportunity, if you decide to end the study early, an alternative assignment will be provided in order to offer you an opportunity to receive extra credit. This alternative assignment will require similar time commitment and effort as the survey.

For participants who were not offered SONA or extra credit for their participation in this study, you can exist the survey early without any additional concerns.

### **ARE YOU PARTICIPATING OR CAN YOU PARTICIPATE IN ANOTHER RESEARCH STUDY AT THE SAME TIME AS PARTICIPATING IN THIS ONE?**

You may take part in this study if you are currently involved in another study. However, if you decide to participate in the study titled *Increasing Knowledge about Anti-Smoking Messages* **you should not participate in the study titled *Increasing Knowledge About Anti-Crystal Meth Messages* or vice versa.** You are only allowed to participate in one of these studies, not both.

**WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?**

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Lianne F. Grant, at [liannegrant@uky.edu](mailto:liannegrant@uky.edu). If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky at 859-257-9428 or toll free at 1-866-400-9428.

**Please click on one of the following:**

- ☐ I **would** like to proceed with this study  
☐ I **do not** want to proceed with this study

## Appendix G: Increasing Knowledge about Anti-smoking Messages Survey

**Instructions:** On the next page you will be shown an advertisement and a set of questions. The questions are aimed at learning more about your feelings towards the advertisement. Therefore, if you believe the advertisement is EXTREMELY UNIQUE, click the button directly beside UNIQUE. If you believe the advertisement is EXTREMELY COMMON, click the button directly beside COMMON. For example:

Unique ☒   ☐   ☐   ☐   ☐   ☐   ☐ Common  
or  
Unique ☐   ☐   ☐   ☐   ☐   ☐   ☒ Common

If you feel the advertisement is quite closely related to one end of the scale (but not extremely), you should click either of the following circles.

Unique ☐   ☒   ☐   ☐   ☐   ☐   ☐ Common  
or  
Unique ☐   ☐   ☐   ☐   ☐   ☒   ☐ Common

If you feel that the advertisement is only slightly related to one end of the scale (but not neutral), you should click either of the following circles.

Unique ☐   ☐   ☒   ☐   ☐   ☐   ☐ Common  
or  
Unique ☐   ☐   ☐   ☐   ☒   ☐   ☐ Common

If you feel the advertisement has neutral levels of a characteristic, click the center circle.

Unique ☐   ☐   ☐   ☒   ☐   ☐   ☐ Common

Please REVIEW the following message carefully. Below, you will be asked to evaluate the message based on the instructions you received on the previous page.

**Participants were then exposed to one of the following images.**

**High Sensation Value Anti-smoking Message One (see Appendix C for Message Description)**

**OR**

**Low Sensation Value Anti-smoking Message Five (see Appendix C for Message Description)**

**This Advertisement is**

Unique	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Common
Unusual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Usual
Novel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ordinary
Unoriginal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Original
Familiar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unfamiliar
Normal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strange
Imaginative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unimaginative
Typical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Atypical
Expected	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unexpected
Old	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	New
Unpredictable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Predictable
Emotional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unemotional
Arousing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Arousing
Involving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uninvolving
Boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Exciting
Powerful impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weak impact
Stimulating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Stimulating
Strong visuals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weak visuals
Not shocking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Shocking
Not Appalling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Appalling
Not moving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Moving
Undramatic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dramatic
Not graphic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Graphic
Not creative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Creative
Not intense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Intense
Didn't give me goose bumps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Gave me goose bumps
Did not blow my mind	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Blew my mind
Hair raising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not hair raising
Extreme	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Extreme
Electrifying	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Calm
Not Interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very interesting
Impressive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unimpressive
Unforgettable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Forgettable
Astonishing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Astonishing

**Instructions:** The questions below are aimed at learning more about your response to the advertisement you just viewed. Indicate the extent to which each statement applies to you.

**Overall, the advertisement made me think about arguments for not smoking.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Overall, the advertisement made me focus more on my thoughts than my emotions.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Overall, the advertisement made me think about the consequences of smoking shown in the message.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Overall, the advertisement made me think about how smoking might affect my life.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Instructions:** The following questions are aimed at learning more about the features of the advertisement. Indicate the extent to which you paid attention to these message features.

**Overall, how much did you pay attention to the advertisement's images?**

Not at All   1   2   3   4   5   6   7   Very much

**Overall, how much did you pay attention to the advertisement's design?**

Not at All   1   2   3   4   5   6   7   Very much

**Overall, how much did you pay attention to the advertisement's color?**

Not at All   1   2   3   4   5   6   7   Very much

**Overall, how much did you pay attention to the advertisement's quality?**

Not at All   1   2   3   4   5   6   7   Very much

**Overall, how much did you pay attention to the advertisement's size?**

Not at All   1   2   3   4   5   6   7   Very much



**Overall, how much did you pay attention to the size of the words in the advertisement?**

Not at All      1      2      3      4      5      6      7      Very much

**Overall, how much did you pay attention to the color of the words in the advertisement?**

Not at All      1      2      3      4      5      6      7      Very much

***Note:** Participants were exposed a second time to the same message they viewed at the beginning of the study with the following instructions: Please review the message for a second time. Below you will be asked additional questions about the message.*

**Instructions:** This section consists of a list of different emotions and feelings. For each question, please indicate the extent to which you experienced the stated emotion or feeling WHILE viewing the message.

**Interested**

Not at all      A little      Moderately      Quite a bit      Very much

**Distressed**

Not at all      A little      Moderately      Quite a bit      Very much

**Excited**

Not at all      A little      Moderately      Quite a bit      Very much

**Upset**

Not at all      A little      Moderately      Quite a bit      Very much

**Strong**

Not at all      A little      Moderately      Quite a bit      Very much

**Guilty**

Not at all      A little      Moderately      Quite a bit      Very much

**Scared**

Not at all      A little      Moderately      Quite a bit      Very much

**Hostile**

Not at all      A little      Moderately      Quite a bit      Very much

**Enthusiastic**

Not at all      A little      Moderately      Quite a bit      Very much

**Proud**

	Not at all	A little	Moderately	Quite a bit	Very much
<b>Irritable</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Alert</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Ashamed</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Inspired</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Nervous</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Determined</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Attentive</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Jittery</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Active</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Afraid</b>	Not at all	A little	Moderately	Quite a bit	Very much

***Note: Participants were exposed a third time to the same message they viewed at the beginning of the study.***

**Instructions:** The following questions refer to the statement(s) made in the advertisement you viewed above. Indicate the extent to which you agree or disagree with each description of the statement(s) in the advertisement.

**The statement(s) in the advertisement provides a reason for not smoking that is believable.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement provides a reason(s) for not smoking that is convincing.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement provides a reason(s) for not smoking that is important to me.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement helped me feel confident about how best to avoid smoking.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement will help my friends make the decision not to smoke.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement put thoughts in my mind that increased my desire to smoke.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement put thoughts in my mind about why I should not smoke.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Overall, how much do you agree or disagree with the statement(s) in the advertisement?**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Is the reason(s) provided in the advertisement for why you should not smoke a strong or weak reason(s)?**

Very weak    Weak    Neither weak or strong    Strong    Very Strong

***Note: Participants were exposed a fourth time to the same message they viewed at the beginning of the study.***

**Instructions:** The following items are designed to get your opinion about the advertisement above. Please indicate the extent to which you agree or disagree with each statement.

**This advertisement got my attention.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement is believable.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement would make me less likely to smoke.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement is memorable.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement is effective.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement would make people my age less likely to smoke.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement is truthful.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement would help prevent my friends from smoking.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement is convincing.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement would help convince me not to smoke.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement made me feel confident with how best to deal with smoking in the real world.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** After reading the instructions on this page, please proceed to the next page. The questions on the next page are aimed at learning more about your feelings toward the advertisement you just viewed. If you believe the advertisement is EXTREMELY GOOD, click the button directly beside GOOD. If you believe the advertisement is EXTREMELY BAD, click the button directly beside BAD. For example:

Good ☒    ☐    ☐    ☐    ☐    ☐    ☐ Bad  
or  
Good ☐    ☐    ☐    ☐    ☐    ☐    ☒ Bad

If you feel the advertisement is quite closely related to one end of the scale (but not extremely), you should click either of the following circles. See example below.

Good ☐    ☒    ☐    ☐    ☐    ☐    ☐ Bad  
or  
Good ☐    ☐    ☐    ☐    ☐    ☒    ☐ Bad

If you feel that the advertisement is only slightly related to one end of the scale (but not neutral), you should click either of the following circles. See example below.

Good ☐    ☐    ☒    ☐    ☐    ☐    ☐ Bad  
or  
Good ☐    ☐    ☐    ☐    ☒    ☐    ☐ Bad

If you feel the advertisement has neutral levels of a characteristic, click the center circle. See example below.

Good ☐    ☐    ☐    ☒    ☐    ☐    ☐ Bad

**This advertisement is:**

Good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bad
Like	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dislike
Interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Boring
Creative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uncreative
Informative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uninformative
Pleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unpleasant
Favorable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unfavorable

**Instructions:** The questions below are aimed at learning more about what smoking means to you.

**To me smoking is**

Important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unimportant
Boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interesting
Relevant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Irrelevant
Exciting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unexciting
Means nothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Means a lot to me
Appealing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unappealing
Fascinating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mundane
Worthless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Valuable
Involving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uninvolving
Not Needed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Needed

**Instructions:** The next few questions ask you to identify the types of activities you enjoy. Please state the extent to which you agree or disagree with each statement.

**I would like to explore strange places.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I would like to take off on a trip with no pre-planned routes or timetables.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I get restless when I spend too much time at home.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I prefer friends who are excitingly unpredictable.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I like to do frightening things.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I would like to try bungee jumping.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I like wild parties.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I would like to have new and exciting experiences, even if they are illegal.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Directions:** This section contains 24 statements concerning your feelings about communication with other people. Please indicate in the space provided the degree to which each statement applies to you by marking whether you (1) Strongly agree, (2) Agree, (3) Undecided, (4) Disagree, (5) Strongly disagree with each statement.

**I dislike participating in group discussions.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**Generally, I am comfortable while participating in a group discussion.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**I am tense and nervous while participating in group discussions.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**I like to get involved in groups discussions.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**Engaging in a group discussion with new people makes me tense and nervous.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**I am calm and relaxed while participating in group discussions.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**Generally, I am nervous when I have to participate in a meeting.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**Usually, I am calm and relaxed while participating in meetings.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**I am very calm and relaxed when I am called upon to express an opinion at a meeting.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I am afraid to express myself at meetings.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**Communicating at meetings usually makes me uncomfortable.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I am very relaxed when answering questions at a meeting.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**While participating in a conversation with a new acquaintance, I feel nervous.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I have no fear of speaking up in conversations.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**Ordinarily I am very tense and nervous in conversations.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**Ordinarily I am very calm and relaxed in conversations.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**While conversing with a new acquaintance, I feel very relaxed.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I am afraid of speaking up in conversations.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I have no fear of giving a speech.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree



**Certain parts of my body feel very tense and rigid while giving a speech.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I feel relaxed while giving a speech.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**My thoughts become confused and jumbled when I am giving a speech.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I face the prospect of giving a speech with confidence.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**While giving a speech, I get so nervous I forget facts I really know.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**Instructions:** Thanks for all your hard work so far. Now we need to ask you a few questions so that we can describe our sample. All of your answers are COMPLETELY ANONYMOUS!

Please use the drop-down list below to indicate your AGE.

- ☐ 18 years old
- ☐ 19 years old
- ☐ 20 years old
- ☐ 21 years old
- ☐ 22 years old
- ☐ 23 years old
- ☐ 24 years old
- ☐ Above 24 years old

**What is your gender?**

Male      Female

**What is your current class rank?**

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior
- ☐ Graduate Student
- ☐ Other \_\_\_\_\_

**What is your race?**

- ☐ White/Caucasian
- ☐ African American
- ☐ Hispanic
- ☐ Asian
- ☐ Native American
- ☐ Pacific Island
- ☐ Other \_\_\_\_\_

**Have you ever smoked cigarettes?**

Yes      No

**Have you smoked a cigarette in the last 30 days?**

Yes      No

## Appendix H: Increasing Knowledge about Anti-crystal Meth Messages Study

**Instructions:** On the next page you will be shown an advertisement and a set of questions. The questions are aimed at learning more about your feelings towards the advertisement. Therefore, if you believe the advertisement is EXTREMELY UNIQUE, click the button directly beside UNIQUE. If you believe the advertisement is EXTREMELY COMMON, click the button directly beside COMMON. For example:

Unique ☒   ☐   ☐   ☐   ☐   ☐   ☐ Common  
or  
Unique ☐   ☐   ☐   ☐   ☐   ☐   ☒ Common

If you feel the advertisement is quite closely related to one end of the scale (but not extremely), you should click either of the following circles. See example below.

Unique ☐   ☒   ☐   ☐   ☐   ☐   ☐ Common  
or  
Unique ☐   ☐   ☐   ☐   ☐   ☒   ☐ Common

If you feel that the advertisement is only slightly related to one end of the scale (but not neutral), you should click either of the following circles. See example below.

Unique ☐   ☐   ☒   ☐   ☐   ☐   ☐ Common  
or  
Unique ☐   ☐   ☐   ☐   ☒   ☐   ☐ Common

If you feel the advertisement has neutral levels of a characteristic, click the center circle. See example below.

Unique ☐   ☐   ☐   ☒   ☐   ☐   ☐ Common

Please REVIEW the following message carefully. Below, you will be asked to evaluate the message based on the instructions you received on the previous page.

**Participants were then exposed to one of the following images.**

**High Sensation Value Anti-crystal Meth Message Four (see Appendix C for Message Description)**

**OR**

**Low Sensation Value Anti-crystal Meth Message Four (see Appendix C for Message Description)**

**This Advertisement is**

Unique	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Common
Unusual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Usual
Novel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ordinary
Unoriginal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Original
Familiar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unfamiliar
Normal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strange
Imaginative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unimaginative
Typical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Atypical
Expected	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unexpected
Old	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	New
Unpredictable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Predictable
Emotional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unemotional
Arousing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Arousing
Involving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uninvolving
Boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Exciting
Powerful impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weak impact
Stimulating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Stimulating
Strong visuals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weak visuals
Not shocking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Shocking
Not Appalling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Appalling
Not moving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Moving
Undramatic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dramatic
Not graphic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Graphic
Not creative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Creative
Not intense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Intense
Didn't give me goose bumps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Gave me goose bumps
Did not blow my mind	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Blew my mind
Hair raising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not hair raising
Extreme	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Extreme
Electrifying	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Calm
Not Interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very interesting
Impressive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unimpressive
Unforgettable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Forgettable
Astonishing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Astonishing

**Instructions:** The questions below are aimed at learning more about your response to the advertisement you just viewed. Indicate the extent to which each statement applies to you.

**Overall, the advertisement made me think about arguments for not using crystal meth.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Overall, the advertisement made me focus more on my thoughts than my emotions.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Overall, the advertisement made me think about the consequences of crystal meth shown in the message.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Overall, the advertisement made me think about how crystal meth might affect my life.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Instructions:** The questions below are aimed at learning more about the features of the advertisement. Indicate the extent to which you paid attention to these message features.

**Overall, how much did you pay attention to the advertisement's images?**

Not at All   1   2   3   4   5   6   7   Very much

**Overall, how much did you pay attention to the advertisement's design?**

Not at All   1   2   3   4   5   6   7   Very much

**Overall, how much did you pay attention to the advertisement's color?**

Not at All   1   2   3   4   5   6   7   Very much

**Overall, how much did you pay attention to the advertisement's quality?**

Not at All   1   2   3   4   5   6   7   Very much

**Overall, how much did you pay attention to the advertisement's size?**

Not at All   1   2   3   4   5   6   7   Very much

**Overall, how much did you pay attention to the size of the words in the advertisements?**

Not at All      1      2      3      4      5      6      7      Very much

**Overall, how much did you pay attention to the color of the words in the advertisement?**

Not at All      1      2      3      4      5      6      7      Very much

***Note:** Participants were exposed a second time to the same message they viewed at the beginning of the study with the following instructions: Please review the message for a second time. Below you will be asked additional questions about the message.*

**Instructions:** The following questions refer to the message you just viewed. For each question please indicate the extent to which you experienced the stated emotion WHILE viewing the message.

**Interested**

Not at all      A little      Moderately      Quite a bit      Very much

**Distressed**

Not at all      A little      Moderately      Quite a bit      Very much

**Excited**

Not at all      A little      Moderately      Quite a bit      Very much

**Upset**

Not at all      A little      Moderately      Quite a bit      Very much

**Strong**

Not at all      A little      Moderately      Quite a bit      Very much

**Guilty**

Not at all      A little      Moderately      Quite a bit      Very much

**Scared**

Not at all      A little      Moderately      Quite a bit      Very much

**Hostile**

Not at all      A little      Moderately      Quite a bit      Very much

**Enthusiastic**

Not at all      A little      Moderately      Quite a bit      Very much

<b>Proud</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Irritable</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Alert</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Ashamed</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Inspired</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Nervous</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Determined</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Attentive</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Jittery</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Active</b>	Not at all	A little	Moderately	Quite a bit	Very much
<b>Afraid</b>	Not at all	A little	Moderately	Quite a bit	Very much

***Note: Participants were exposed a third time to the same message they viewed at the beginning of the study.***

**Instructions:** The following questions refer to the statement(s) made in the advertisement you viewed above. Indicate the extent to which you agree or disagree with each description of the statement(s) in the advertisement.

**The statement(s) in the advertisement provides a reason for not using crystal meth that is believable.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement provides a reason for not using crystal meth that is convincing.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement provides a reason(s) for not using crystal meth that is important to me.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement helped me feel confident about how best to avoid crystal meth use.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement will help my friends make the decision to not use crystal meth.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement put thoughts in my mind that increased my desire to use crystal meth.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**The statement(s) in the advertisement put thoughts in my mind about why I should not use crystal meth.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Overall, how much do you agree or disagree with the statement(s) in the advertisement?**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** The purpose of this question is to obtain your impression of the statement(s) in the advertisement you viewed.

**Is the reason(s) provided in the advertisement for why you should not use crystal meth a strong or weak reason(s)?**

Very weak    Weak    Neither weak or strong    Strong    Very Strong

***Note: Participants were exposed a fourth time to the same message they viewed at the beginning of the study.***



**Instructions:** The following items are designed to get your opinion about the advertisement you viewed. Please indicate the extent to which you agree or disagree with each statement.

**This advertisement got my attention.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement is believable.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement would make me less likely to use crystal meth.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement is memorable.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement is effective.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement would make people my age less likely to use crystal meth.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement is truthful.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement would help prevent my friends from using crystal meth.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement was convincing.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement would help convince me not to use crystal meth.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**This advertisement made me feel confident with how best to deal with crystal meth use in the real world.**

Strongly disagree   Disagree   Neither agree/disagree   Agree   Strongly agree

**Instructions:** After reading the instructions on this page, please proceed to the next page. The questions on the next page are aimed at learning more about your feelings towards the advertisement you just viewed. If you believe the advertisement is EXTREMELY GOOD, click the button directly beside GOOD. If you believe the advertisement is EXTREMELY BAD, click the button directly beside BAD. For example:

Good ☒   ☐   ☐   ☐   ☐   ☐   ☐ Bad  
or  
Good ☐   ☐   ☐   ☐   ☐   ☐   ☒ Bad

If you feel the advertisement is quite closely related to one end of the scale (but not extremely), you should click either of the following circles. See example below.

Good ☐   ☒   ☐   ☐   ☐   ☐   ☐ Bad  
or  
Good ☐   ☐   ☐   ☐   ☐   ☒   ☐ Bad

If you feel that the advertisement is only slightly related to one end of the scale (but not neutral), you should click either of the following circles. See example below.

Good ☐   ☐   ☒   ☐   ☐   ☐   ☐ Bad  
or  
Good ☐   ☐   ☐   ☐   ☒   ☐   ☐ Bad

If you feel the advertisement has neutral levels of a characteristic, click the center circle. See example below.

Good ☐   ☐   ☐   ☒   ☐   ☐   ☐ Bad

**Note:** Participants were exposed a fifth time to the same message they viewed at the beginning of the study.

**This Advertisement is:**

Good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bad
Like	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dislike
Interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Boring
Creative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uncreative
Informative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uninformative
Pleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unpleasant
Favorable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unfavorable

**Instructions:** The questions below are aimed at learning more about what crystal meth use means to you.

**To me using crystal meth is**

Important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unimportant
Boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interesting
Relevant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Irrelevant
Exciting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unexciting
Means nothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Means a lot to me
Appealing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unappealing
Fascinating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mundane
Worthless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Valuable
Involving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uninvolving
Not Needed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Needed

**Instructions:** The next few questions ask you to identify the types of activities you enjoy. Please state the extent to which you agree or disagree with each statement.

**I would like to explore strange places.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I would like to take off on a trip with no pre-planned routes or timetables.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I get restless when I spend too much time at home.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I prefer friends who are excitingly unpredictable.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I like to do frightening things.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I would like to try bungee jumping.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I like wild parties.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**I would like to have new and exciting experiences even if they are illegal.**

Strongly disagree    Disagree    Neither agree/disagree    Agree    Strongly agree

**Instructions:** This section contains 24 statements concerning your feelings about communication with other people. Please indicate in the space provided the degree to which each statement applies to you by marking whether you (1) Strongly agree, (2) Agree, (3) Undecided, (4) Disagree, (5) Strongly disagree with each statement.

**I dislike participating in group discussions.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**Generally, I am comfortable while participating in a group discussion.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**I am tense and nervous while participating in group discussions.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**I like to get involved in groups discussions.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**Engaging in a group discussion with new people makes me tense and nervous.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**I am calm and relaxed while participating in group discussions.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**Generally, I am nervous when I have to participate in a meeting.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**Usually I am calm and relaxed while participating in meetings.**

Strongly agree    Agree    Undecided    Disagree    Strongly disagree

**I am very calm and relaxed when I am called upon to express an opinion at a meeting.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I am afraid to express myself at meetings.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**Communicating at meetings usually makes me uncomfortable.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I am very relaxed when answering questions at a meeting.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**While participating in a conversation with a new acquaintance, I feel nervous.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I have no fear of speaking up in conversations.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**Ordinarily I am very tense and nervous in conversations.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**Ordinarily I am very calm and relaxed in conversations.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**While conversing with a new acquaintance, I feel very relaxed.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I'm afraid of speaking up in conversations.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I have no fear of giving a speech.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**Certain parts of my body feel very tense and rigid while giving a speech.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I feel relaxed while giving a speech.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**My thoughts become confused and jumbled when I am giving a speech.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**I face the prospect of giving a speech with confidence.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**While giving a speech, I get so nervous I forget facts I really know.**

Strongly agree      Agree      Undecided      Disagree      Strongly disagree

**Instructions:** Thanks for all your hard work so far. Now we need to ask you a few questions so that we can describe our sample. All of your answers are COMPLETELY ANONYMOUS!

Please use the drop-down list below to indicate your AGE.

- ☐ 18 years old
- ☐ 19 years old
- ☐ 20 years old
- ☐ 21 years old
- ☐ 22 years old
- ☐ 23 years old
- ☐ 24 years old
- ☐ Above 24 years old

**What is your gender?**

Male      Female

**What is your current class rank?**

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior
- ☐ Graduate Student
- ☐ Other \_\_\_\_\_

**What is your race?**

- ☐ White/Caucasian
- ☐ African American
- ☐ Hispanic
- ☐ Asian
- ☐ Native American
- ☐ Pacific Island
- ☐ Other \_\_\_\_\_

**Have you ever used crystal meth?**

Yes      No

**Have you used crystal meth in the last 30 days?**

Yes      No

THANK YOU for participating in this study! ☺

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### Presentations

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### Professional Publication

Ivanov, B., Parker, K. A., Dillingham, L. L., Petrun, E. L., **Grant, L. F.**, Geegan, S. (2013). Enhancing inoculation: Examining the relationships among attack certainty, threat and resistance. *International Journal of Neuroscience and Behavioral Science*, 1, 13 - 23. doi: 10.13189/ijnbs.2013.010201